

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

EPA Region 5 Records Ctr.



242144

DATE:

APR 22 1993

SUBJECT: ON-SCENE COORDINATOR'S REPORT - Removal Action at the Dayton Tire and Rubber Co. Site, Phase II and III, Dayton, Montgomery County, Ohio (Site ID # 9A)

FROM: Robert J. Bowden, Chief *R. Karl for*
Emergency and Enforcement Response Branch, HSE-5J

TO: Debbie Y. Dietrich, Acting Director
Emergency Response Division, OS-210

THRU: Jodi L. Traub, Acting Associate Division Director
Office of Superfund, HS-6J

Attached please find the On-Scene Coordinator's Report for the removal action, Phase II and III, conducted at the Dayton Tire and Rubber Company site, located in Dayton, Montgomery County, Ohio. The report follows the format outlined in the National Contingency Plan (NCP), Section 300.165. The Phase II removal began on November 16, 1987, and was completed on April 16, 1988. The Phase III removal began on October 17, 1988, and was completed on August 8, 1989. The On-Scene Coordinators (OSCs) for Phase II and III of the removal were Jose Cisneros, William Simes, and Jackie Van Bosse.

The site posed an immediate threat to human health and the environment. The action was taken to mitigate threats posed by polychlorinated biphenyls (PCBs), asbestos-containing materials, and drums of hazardous waste remaining at the Dayton Tire and Rubber Co. site. These materials posed threats through inhalation, ingestion, and dermal contact, in addition to potential off-site migration.

Costs under the control of the On-Scene Coordinator totalled \$2,572,635 for Phase II, of which \$2,288,418.82 were for the Emergency Response Cleanup Services (ERCS) contractor. The costs totalled \$1,646,474 for Phase III, of which \$1,473,377.95 were for the ERCS contractor.

Any indication of costs in this OSC Report of specific costs incurred at the site is only an approximation, subject to audit and final definitization by the U.S. EPA. The OSC Report is not a final reconciliation of the costs associated with a particular site.

Portions of the OSC Report appendices may contain confidential business or enforcement-sensitive information and must be reviewed by the Office of Regional Counsel prior to release to the public.

This site is not on the National Priorities List.

Attachment

cc: Ohio Environmental Protection Agency (OEPA), w/OSC Report
T. Johnson, U.S. EPA, OERR, OS-210, w/OSC Report
T. Williams, SCS-TUB-3, w/OSC Report
T. Lesser, P-19J, w/OSC Report
S. Dorsey, CRU, HSM-5J, w/OSC Report
D. O'Riordan, R-19J, w/OSC Report
J. Connell, 5SPT
R. Mayhugh, HSC-9J, w/OSC Report (20 copies for RRT
distribution)
B. Ramsey, Secretary, NRT, OS-210
OSC J. Cisneros, w/OSC Report
OSC W. Simes, w/OSC Report
R. Bowden, EERB, w/OSC Report
M. O'Mara, ESS, w/OSC Report
R. Powers/R. Buckley, RS1, w/ OSC Report
D. Bruce, RS2, w/OSC Report
T. Geishecker, RS3, w/OSC Report
EERB Site File, HM-7J, w/OSC Report (5 copies)

ON-SCENE COORDINATOR'S REPORT

CERCLA REMOVAL ACTION

**DAYTON TIRE AND RUBBER COMPANY
PHASES II AND III
DAYTON, OHIO**

DELIVERY ORDER NO. 7460-05-107

SITE ID #: 9A

REMOVAL DATES:

**Phase II - November 16, 1987 - April 16, 1988
Phase III - October 17, 1988 - August 8, 1989**

**Jose Cisneros
On-Scene Coordinator
Emergency Response
Office of Superfund
Waste Management Division
Region V
United States Environmental Protection Agency**

EXECUTIVE SUMMARY

Site/Location: Dayton Tire and Rubber Company Site
Removal Dates: Phase II -- November 16, 1987 - April 16, 1988
Phase III -- October 17, 1988 - August 8, 1989

INCIDENT DESCRIPTION:

This site was an abandoned automobile tire manufacturing and distribution center. Operations ceased at the facility in 1980, and salvagers removed material from the on-site equipment beginning in 1981. On April 3, 1987, an oil spill occurred on Wolf Creek and was subsequently traced to the site. Further investigation determined that PCB-contaminated dielectric fluid from the numerous transformers and switch boxes had been emptied onto the concrete floors of the facility, as well as onto the ground. In addition, the steam lines of the building were found to be insulated with asbestos materials which had become friable and had also been vandalized.

A three phase removal action was taken to mitigate the threats to public health presented by the presence of PCB-contaminated oil and asbestos. These materials presented threats through direct contact because of inadequate restriction of access to the site and through the potential for off-site migration of contaminants via stormwater run-off. Removal actions performed from April 4, 1987 through September 29, 1987 (Phase I) are summarized in the Phase I On-Scene Coordinator's Report, Dayton Tire and Rubber.

ACTIONS TAKEN:

On November 16, 1987, the United States Environmental Protection Agency (U.S. EPA) continued a mitigative action at the Dayton Tire and Rubber Company site in Dayton, Ohio. This Phase II removal action was to further mitigate the imminent threats to human health and the environment posed by the polychlorinated biphenyl (PCB) and asbestos contamination present at the site. The U.S. EPA negotiated a site-specific contract with PEI Associates, Inc., Cincinnati, Ohio, which specifically addressed estimated amounts of PCB and asbestos contamination at the site.

The Phase II removal action was completed on April 16, 1988, at an estimated cost under the control of the OSC of \$2,572,635, of which \$2,288,418.82 was for the Emergency Response Cleanup Services (ERCS) contractor, PEI Associates, Inc. The U.S. EPA On-Scene Coordinator was William Simes.

On October 17, 1988, the Emergency Response Section of the U.S. Environmental Protection Agency (U.S. EPA), Region V, initiated the Phase III removal action at the Dayton Tire and Rubber Company site in Dayton, Ohio. The purpose of the Phase III removal action was to continue mitigation of the imminent and substantial threats to human health and the environment posed by


polychlorinated biphenyls (PCBs), asbestos-containing materials, and drums of hazardous waste remaining at the Dayton Tire and Rubber Company site. The PCB and asbestos contamination posed threats through inhalation, ingestion, and dermal contact, in addition to potential off-site migration.

Under the guidance of the U.S. EPA, the Emergency Response Cleanup Services (ERCS) contractor decontaminated approximately 139,600 square feet of PCB-contaminated floor surfaces in the main building and removed approximately 1,570 cubic yards of PCB-contaminated building debris, concrete, and soil for transport and disposal to a Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA)-approved hazardous waste landfill. Following floor decontamination and soil removal, sampling was performed to ensure that PCB cleanup standards were achieved. In addition, the ERCS contractor removed and transported 157 cubic yards of materials containing loose and friable asbestos and 68 hazardous waste drums to RCRA-approved disposal facilities and landfills.

All actions taken were consistent with the National Contingency Plan.

The Phase III removal action was completed on August 8, 1989, at an estimated cost under the control of the OSC of \$ 1,646,474, of which \$1,473,377.95 was for the ERCS contractor. The U.S. EPA On-Scene Coordinators for this project were Jose Cisneros, Jacqueline Van Bosse, and William Simes.

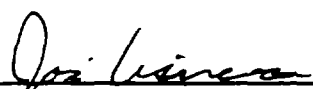
The total charge for both Phase II and Phase III removal actions was \$4,219,109, which includes total ERCS charges of \$3,761,796.77.



Jose Cisneros, On-Scene Coordinator
Emergency and Enforcement Response Branch
United States Environmental Protection Agency

11/23/92

Date

 for W.S.

William Simes, On-Scene Coordinator
Emergency and Enforcement Response Branch
United States Environmental Protection Agency

Date

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- C - TDDs for TAT
- D - POLREPs
- E - Daily Work Report
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- G - 1900-55 Forms, Daily Cost Summary, TAT Estimated Daily Cost, Cumulative Payroll Cost, EPA Direct and Indirect Cost by SUPERFUND, Inventory Log and Material Logs
- H - Incident Obligation Log, Computer Cost Summary of U.S. EPA Costs, Tracking Log of U.S. EPA and Contractor Cost Report
- I - Site Entry/Exit Log
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- K - Contractor Results, Extent-of-Contamination Survey, Asbestos Survey
- L - Site Photographs
- M - Chains of Custody
- N - Waste Profile Sheets, Disposal Information, and Water Treatment Information
- O - Manifests
- P - Site Safety Plan
- Q - Miscellaneous Documents from State and Local Agencies, Correspondence, Contractor Guideline Manual, Sale Agreement, Site Access to MFC Company, Accident/Incident Report, Adjacent Landowners Information
- R - Media Coverage, Community Relations Plan
- S - Analytical Results and Quality Assurance
- T - Subcontractor Bid Sheets and Proposals
- U - Bench-Scale Experiments
- V - Drum Logs and Compatibility Results
- W - TAT Removal Action Plan, OSC Outline, Statement of Work, Fact Sheet
- X - Site Log
- Y - Notification Letters to PRPs, Title Search
- Z - Disks
- AA - Correspondence
- BB - Contractor's Invoices
- CC - Maps

Note: Portions of these appendices may contain confidential business or enforcement-sensitive information and should be reviewed by the Office of Regional Counsel prior to release to the public.

1.0 SUMMARY OF EVENTS

1.1 Location/Initial Situation

Dayton Tire and Rubber Company (Dayton Tire) is an abandoned automobile tire manufacturing and distribution center located at 2347 Riverview Avenue in the City of Dayton, Montgomery County, Ohio (Figure 1). The site, which covers approximately 37 acres, is located in an urban area near the intersection of Riverview Avenue and Rosedale Avenue (Figure 2), approximately 2 miles west of downtown Dayton.

The dominant structure at the Dayton Tire site is a one- to four-story abandoned building, hereinafter referred to as the "Facility." The Facility (1,600 feet long and 800 feet wide) was the predominant area of tire manufacturing, storage, and processing at the Dayton Tire site (Figure 3). A basement level is situated beneath approximately two-thirds of the structure (Figure 4). A pump station on the south side of the Facility drains the area around and beneath the Facility (Figure 2).

Land use near the Facility is primarily residential, in addition to some industrial and commercial buildings. Residences border the Facility on the north (within 500 feet of the Facility), and to the south is Wolf Creek, an east-flowing tributary of the Great Miami River (located 1.5 miles east of the site). The east and west sides of the Facility are bordered by an operating tire processing plant and a wooded field, respectively (Figure 2).

The Dayton Tire site is situated along the flat alluvial plain of Wolf Creek, which the Ohio Department of Natural Resources (ODNR) describes as underlain by thick, interfingering, floodplain and channel deposits of the Great Miami River Aquifer. According to ODNR, an industrial well capable of yielding 1,000 to 1,500 gallons per minute is on-site at a depth of 185 feet (in a permeable floodplain sand and gravel layer). Although the regional ground water transport direction is to the east, ground water flow at the Dayton Tire site is to the south toward Wolf Creek. Residences use the City of Dayton Water Supply Network, and the nearest municipal well in this network is approximately 2 miles east of the Facility.

1.2 Previous Actions/Site History

From the early 1940's until it ceased operation in October 1980, Dayton Tire manufactured automobile tires and other rubber products as a local division of Firestone Tire and Rubber Company (Firestone). Solvents (including benzene, toluene, and xylene), oils, alcohols, acids, and carbon black were used in the manufacturing processes. In addition, numerous electrical transformers and switch boxes containing large volumes of polychlorinated biphenyl (PCB)-contaminated dielectric fluid were

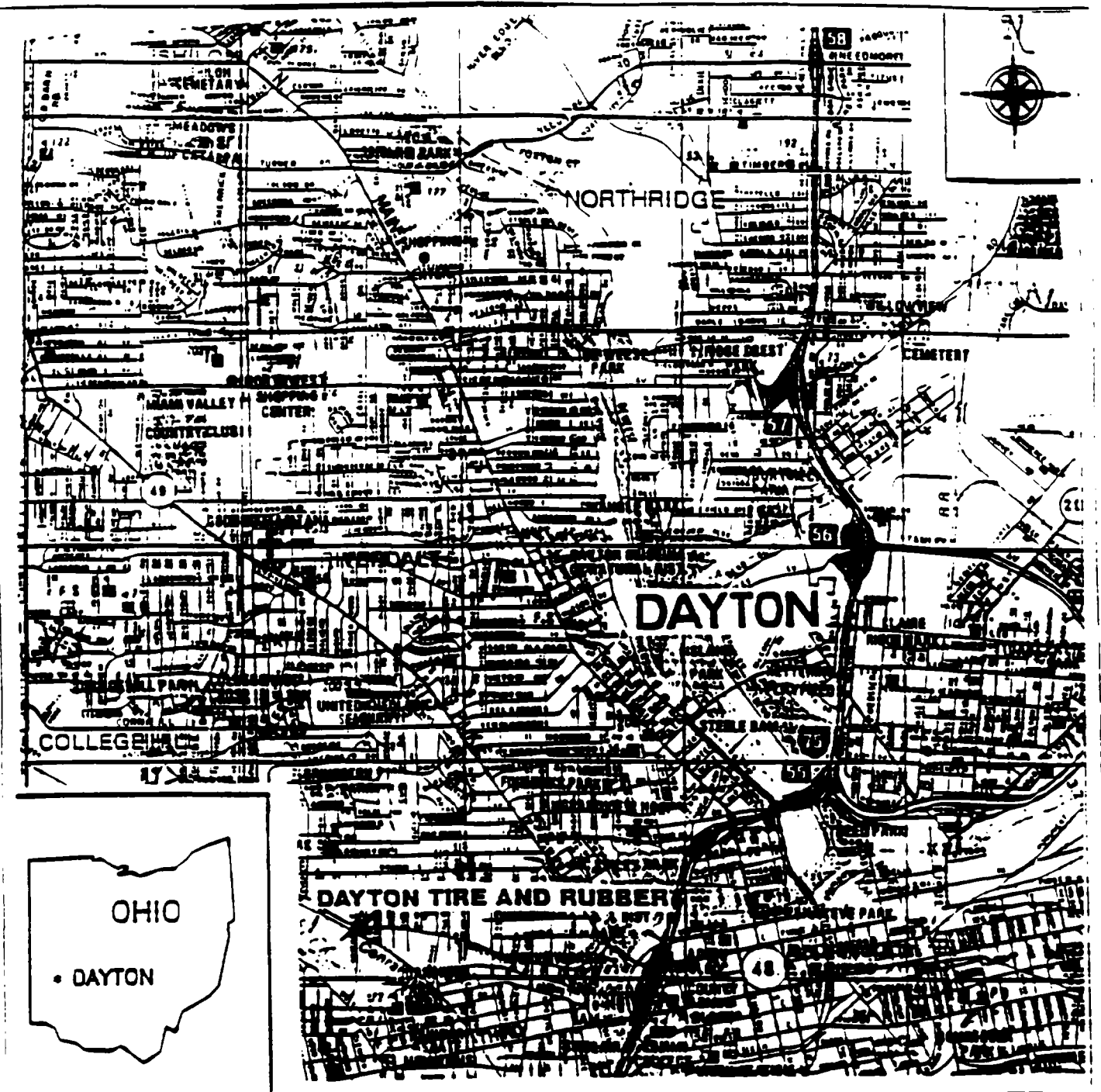


FIGURE 1

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
EMERGENCY AND ENFORCEMENT RESPONSE
BRANCH

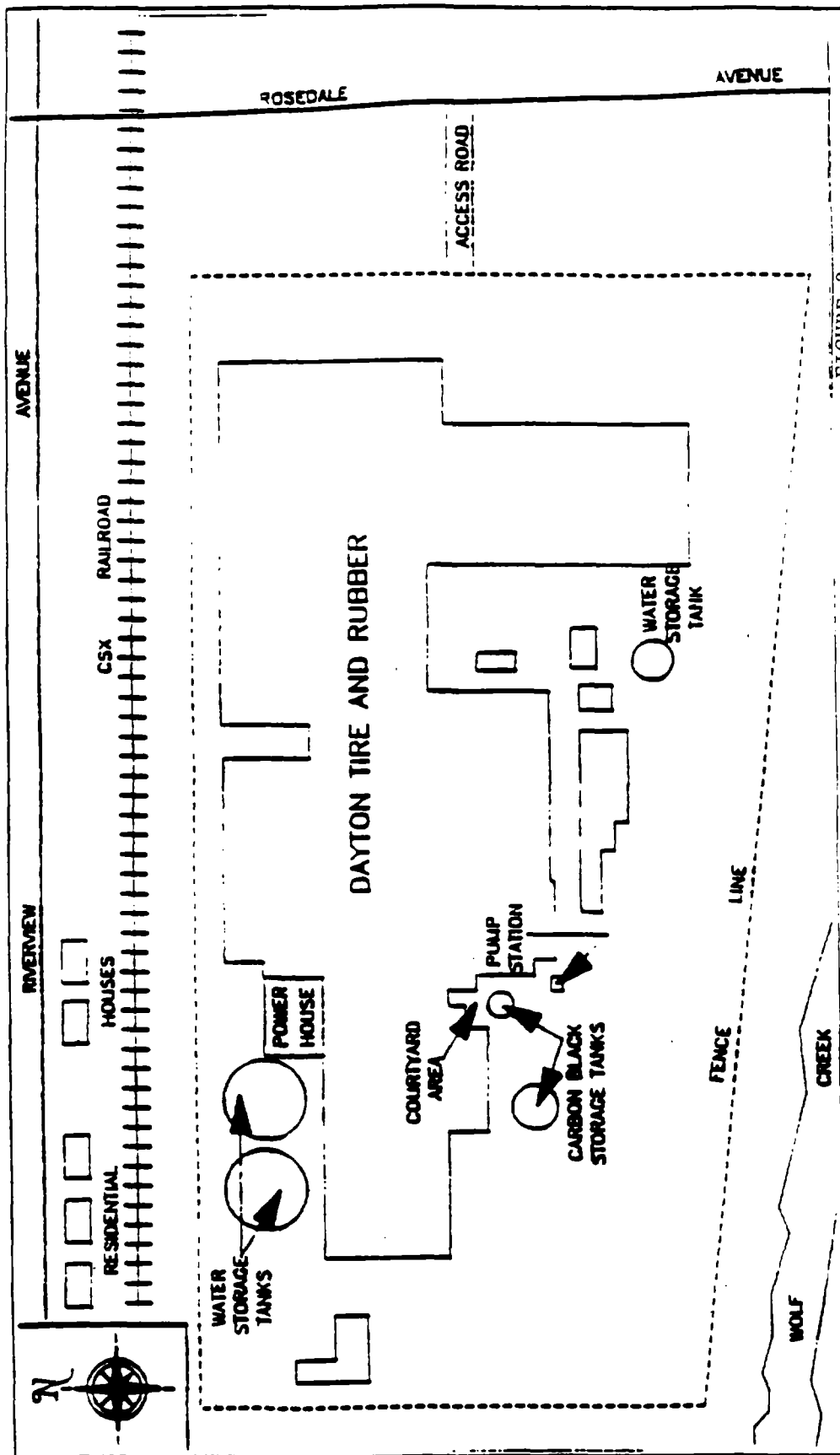


FIGURE 2

U.S. EPA
REGION V
EMERGENCY AND
ENFORCEMENT
RESPONSE BRANCH

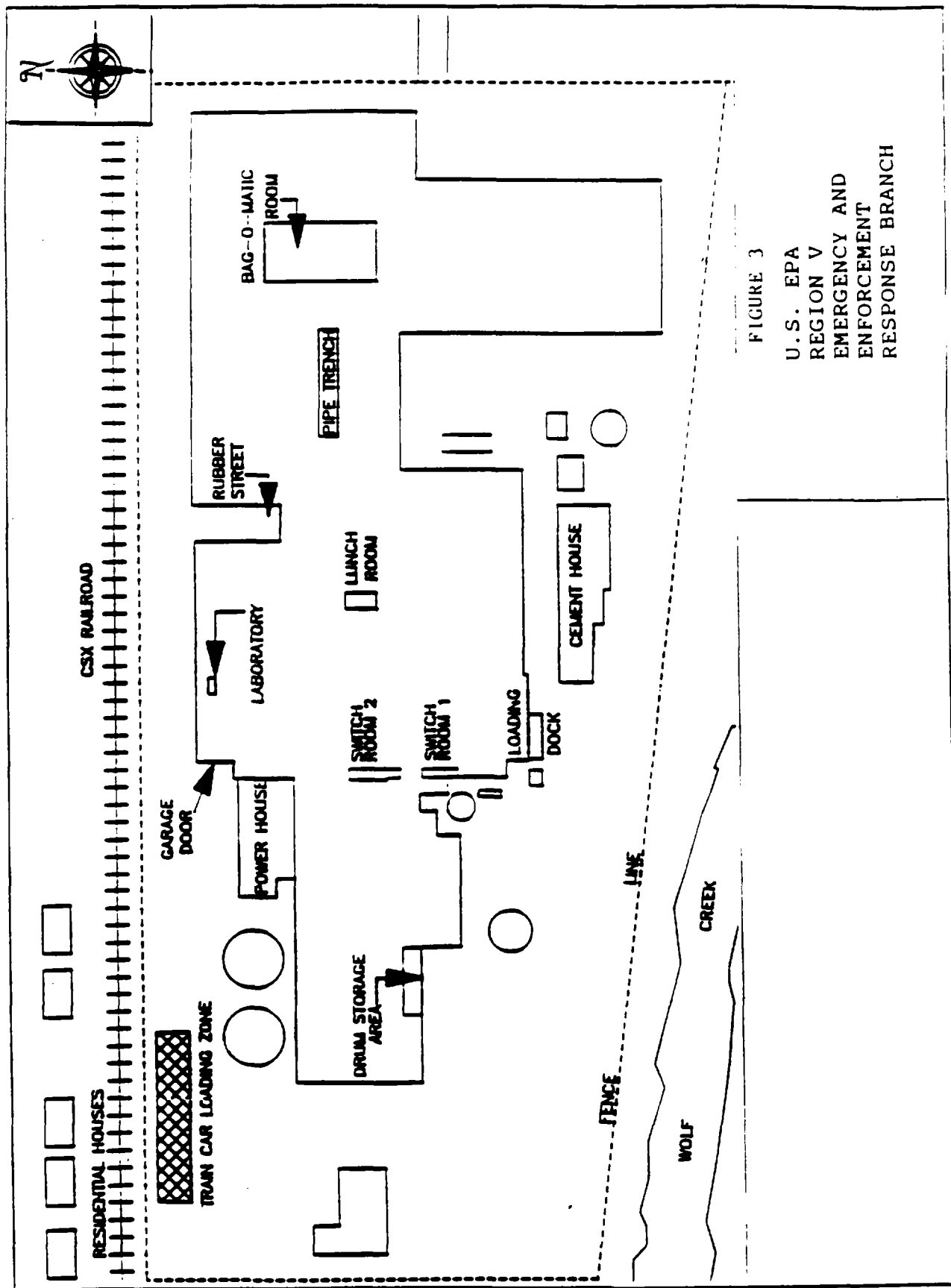


FIGURE 3
U.S. EPA
REGION V
EMERGENCY AND
ENFORCEMENT
RESPONSE BRANCH

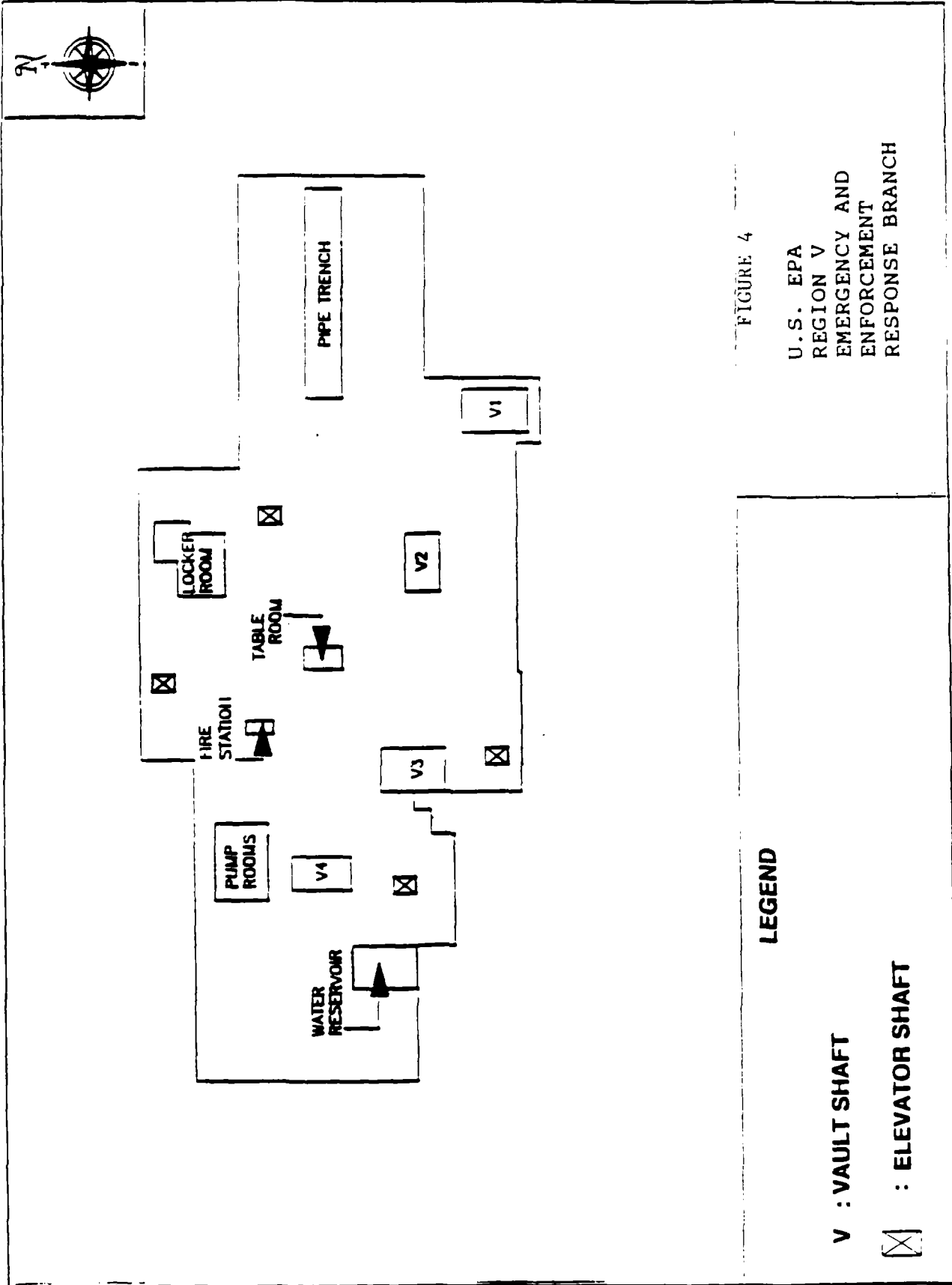


FIGURE 4

U.S. EPA
REGION V
EMERGENCY AND
ENFORCEMENT
RESPONSE BRANCH

LEGEND

V : VAULT SHAFT

[X] : ELEVATOR SHAFT

used at the site for power. The Facility also contained thousands of feet of 8- and 12-inch-diameter steam lines, which were insulated with asbestos materials, in addition to a large network of roof and floor drains and sewers.

In 1981, J-V Properties, a real estate developing firm in Akron, Ohio, purchased the Dayton Tire property. A corporation having principals in common with J.V. Properties, Machinery Merchants, Inc., Akron, Ohio, sold the rights to tire manufacturing machinery and other equipment in the Facility to Carlisle Corporation of Philadelphia, Pennsylvania. Subsequently, a salvager purchased the rights to some of the equipment from Carlisle and removed salvageable material from the site. Copper windings in electrical transformers and switches were among the salvageable materials with monetary value.

1.2.1 Initial State Response

On April 3, 1987, a local resident reported an oil spill on Wolf Creek to the Ohio Environmental Protection Agency (OEPA). OEPA immediately responded and traced the oil spill from the confluence of Wolf Creek with the Great Miami River (1.5 miles southeast of Dayton Tire), along Wolf Creek to a drain pipe located on the north bank of Wolf Creek, directly south of the pump station at the Dayton Tire site. After further investigation, OEPA discovered that the outfall was connected to the pump station and functioned as a rainfall drainage conduit from the Facility.

OEPA reported that during copper recovery activities, the salvager emptied transformers and switches, which contained PCB-contaminated dielectric fluid, onto concrete floors inside the Facility. More PCB-contaminated oil was dumped outside the Facility onto the ground, onto a concrete transformer pad located directly north of the pump station, and onto the roof. During heavy rain episodes, the PCB-contaminated oil from the transformers and switches apparently washed from the outfall and the ground into Wolf Creek.

1.2.2 State and Local Efforts to Clean Up Site

OEPA immediately initiated cleanup activities by contacting Leston Sewer Company of Dayton (a State of Ohio Emergency Response Contractor), to stabilize the oil spill. It soon became apparent, however, that the response would exceed the \$10,000 budgetary limit of the OEPA Emergency Response Program.

1.2.3 Initial Federal Efforts to Clean Up Site

On April 3, 1987, OEPA notified the U.S. Environmental Protection Agency (U.S. EPA) Region V, Emergency Response Section, that approximately 1,600 gallons of PCB-contaminated oil had been released from the Dayton Tire site into Wolf Creek. OEPA requested assistance in remediating the immediate threat to human health and the environment associated with the release and the 1-mile-long oil slick.

The U.S. EPA On-Scene Coordinator (OSC), Robert Bowlus, arrived at the Dayton Tire site on April 3, 1987, and mobilized PEI Associates, Inc. (PEI), the Zone III Emergency Response Cleanup Services (ERCS) contractor, to assist in the cleanup operation. An ERCS subcontractor for PEI, O.H. Materials (OHM), began work on April 4, 1987. The Technical Assistance Team (TAT) also responded to assist the OSC on April 4, 1987.

To mitigate the immediate hazards, Wolf Creek was boomed and partially skimmed, and standing oils on the transformer pad were vacuumed and transferred to drums. The oil/water and sediment recovered from Wolf Creek filled approximately seventy 55-gallon drums, and more than 200 gallons of oil were recovered from the transformer pad and the ground surrounding the concrete pad. The residual PCB-contaminated oil in transformers and switches in the building and on the roof was also drained into drums.

A further site inspection conducted by the OSC and TAT revealed oil-stained floors in the Facility, pools of oil within several diked transformer vault areas and switch rooms located throughout the Facility, oil-stained surfaces on the roof near transformer storage areas, oil-coated walls outside the Facility, drained transformer carcasses, exposed pipes and boilers (suspected to be covered with asbestos), and oil-stained sediments along the banks of Wolf Creek. The investigators also observed eight 12,000-gallon storage tanks located in the basement of the Facility, and approximately two hundred fifty 55-gallon drums scattered throughout the Facility. The contents of the tanks and drums were unknown at the time of the initial site investigation.

On April 15, 1987, U.S. EPA returned to the site because heavy rainstorms had resulted in additional releases of PCB-contaminated oil into Wolf Creek. The ERCS contractor was remobilized, with OHM approved to control the new discharges, which resulted in approximately 20 additional gallons of oil entering Wolf Creek. It was speculated that PCB-contaminated oil entering the pump station from a large network of drains and sewers beneath and around the Facility was being siphoned by a high-level valve system into the discharge pipe to Wolf Creek. This conclusion was later confirmed by a dye test conducted by U.S. EPA, which determined that the drainage system was heavily contaminated with PCB-contaminated oil that would discharge whenever significant

precipitation occurred. Before demobilization from the site, U.S. EPA employed a 24-hour security service to keep out intruders and also ensured that fences were repaired to restrict site access.

Between April and July 1987, TAT, OEPA, and PEI collected over 100 samples along Wolf Creek, from areas around the roof transformers, and from the vault and switch rooms. Swipe samples from Facility floors with visible oil spills revealed PCB contamination levels as high as 298 parts per million (ppm), and analysis of water samples collected from the discharge pipe to Wolf Creek showed levels of PCB contamination as high as 4,900 ppm. Wolf Creek sediment samples collected at the discharge pipe registered 6,020 ppm PCBs, and analysis of soil samples collected in the courtyard (where PCB-contaminated oil drained onto the ground) indicated PCB levels up to 3,156 ppm. Analysis of ten samples of loose and friable pipe insulation revealed seven of the ten to be primarily asbestos, and three to be primarily fiberglass with asbestos layers.

U.S. EPA remobilized PEI to remove contaminated sediments from Wolf Creek in July 1987, and approximately 20 cubic yards (yd³) of contaminated soil was removed from the north bank of Wolf Creek near the discharge pipe. Additional information concerning activities that occurred during Phase I of the removal is presented in the Phase I Dayton Tire OSC Report.

1.3 Threat to Public Health and/or the Environment

The levels of contamination remaining at the Dayton Tire site, combined with the proximity of the site to residential areas, presented an immediate threat to human health and the environment, as outlined in Section 300.65 (b) (2) of the National Contingency Plan. The threats posed by the site included the following:

- o The presence of hazardous materials (including PCBs on floors and in the soil, and friable asbestos) posed a threat via direct contact because access to the site was inadequately restricted. Prior to the commencement of the removal action, vandals and transients had entered the building on several occasions.
- o Sample analyses of surface soils, water, and sediments indicated that PCBs had migrated off-site; furthermore, this migration would continue to occur, thus constituting an immediate and significant risk to public health and the environment.

To protect human health and the environment, immediate action was required to stabilize, control, and remove contaminants that posed public health threats. PCBs are hazardous substances capable of causing both short- and long-term health effects in humans. PCBs bioaccumulate in the food chain, and may damage human skin and liver tissue, and/or cause chloracne (severe skin acne). Asbestos is a hazardous substance that is quite stable and persistent in the environment; it does not readily break down. Asbestos is also a human carcinogen, and may cause lung cancer and/or scarring and irritation of sensitive lung tissue when inhaled or ingested.

1.3.1 Natural Resource Damage

It is known that PCBs bioaccumulate in the food chain and some attempt was made in Phase I of the removal action to assess the possible damage to the fauna of Wolf Creek. ODNR collected and analyzed fish from Wolf Creek and found them to be contaminated with PCB concentrations as high as 18 ppm. The limit for PCBs in edible portions of fish is 2 ppm. Local health authorities issued public advisories against the consumption of fish from the area in 1987.

1.4 Attempts to Obtain a Response by Potentially Responsible Parties

State and city officials provided information to U.S. EPA before and during the removal regarding potential responsible parties (PRPs) for the Facility. In addition, U.S. EPA conducted a title search of the property and contacted the Chamber of Commerce and Dayton Public Library for information. Identified PRPs were sent an Administrative Order under Section 106 of CERCLA requesting them to conduct the removal at the Facility; however, all responses to the order were negative.

In response to the Administrative Order, Firestone stated that the company had hired Systech Corporation, a company specializing in plant shutdowns and closings, to conduct a careful closure of the facility in 1981. Systech Corporation inspected the site to ensure that all hazardous materials were removed from the site. Firestone claims that the transformers containing PCB-contaminated oils were in working condition at the time of the sale of the property to J-V Properties and Machinery Merchants International Inc., in 1981, and that the transformers were sold as an integral part of the Facility.

Firestone has provided U.S. EPA with a copy of a Certification of Warranty in which J-V Properties and Machinery Merchants International, Inc., agreed to use the transformers for power in the facility, not for scrapping or resale purposes. Within

a few years of this sale, non-PCB-contaminated transformers were allegedly sold to a salvage company. Transformers containing PCB-contaminated oil were left on the site, and vandals or unauthorized salvagers entered the site to retrieve copper wiring from the transformers.

Firestone also noted that the reported PCB spill was a result of vandalism at least 6 years after the sale to J-V Properties. U.S. EPA has asserted that this sale to scrap dealers in fact constituted a disposal under CERCLA Section 107.

Similarly, Firestone states that the asbestos in the Facility was in good condition at the time of the sale of the Facility, and was an integral part of the building as pipe insulation and protection. Much of the deteriorated asbestos insulation is the result of salvaging of piping, and deterioration of the roof and glass windows of the Facility, which has exposed the asbestos to outside elements.

J-V Properties and Machinery Merchants International, Inc., were liquidated in 1985. Machinery Merchants was in debt for over \$5 million to BancoOhio at that time, and in 1985, equipment from the Facility was sold to the Simcha Group by BancoOhio and Machinery Merchants. In a letter to U.S. EPA dated May 1, 1987, J-V Properties and Machinery Merchants International, Inc., stated that the Dayton Tire property was transferred to the BancoOhio National Bank on June 25, 1985.

On September 20, 1991, general notice letters were sent to Bridgestone/Firestone, Inc., Jack McCarthy, Harry Hausman, and Bertram S. Green, but only Bridgestone/Firestone responded, and it denied liability for response costs.

1.5 Actions Taken

As noted in the OSC Report for Phase I of the removal action at the Dayton Tire and Rubber Company site, U.S. EPA assumed the lead role, since OEPA had already exceeded its authorized spill response budget of \$10,000 for the initial stabilization efforts. Initially, U.S. EPA allocated \$40,000 under the provisions of the Superfund Amendments and Reauthorization Act (SARA) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). U.S. EPA granted ceiling increases above this amount on April 7, 1987 (\$10,000), April 15, 1987 (\$40,000), April 17, 1987 (\$200,000), and July 6, 1987 (\$516,000).

During Phase II of the removal action at the Dayton Tire and Rubber Company site, requests were granted for a ceiling increase (August 18, 1987) and \$2 million waiver (September 8, 1987), for a total ceiling of \$4,276,000. Subsequent ceiling increases were granted on September 22, 1987 (for previous verbal authorization of \$290,000) and September 27, 1988 (total ceiling: \$5,496,086).

A request for redirection of funds for removal action was granted on March 17, 1988. A request for a one-year exemption was granted on April 18, 1988.

The initial project ceiling for the Phase III removal action was \$924,968; this ceiling was increased to \$1,174,968 on February 15, 1989; to \$1,343,327 on March 29, 1989; to \$1,710,477 on April 24, 1989; and to \$2,010,477 on May 4, 1989. William Simes, Jacqueline Van Bosse, and Jose Cisneros (U.S. EPA Emergency Response Section) were designated OSCs.

1.5.a Phase II Federal Removal Action

1.5.a.1 Introduction to Site-Specific Cleanup Contract with PEI Associates

Under a site-specific contract from November 16, 1987, to April 16, 1988, PEI was the primary cleanup contractor for the Dayton Tire site. This site-specific contract allowed PEI 90 days of administrative overhead to complete site activities. PEI planned daily work activities, performed sampling, and arranged for disposal, in addition to subcontracting with International Technology Corporation (IT) to provide additional manpower for site activities. U.S. EPA and TAT were on-site in a supervisory and monitoring role. The asbestos removal was subcontracted to SAFE-T-Environmental (see Line Item B.1).

The site-specific contract listed each site activity to be completed as a line item in the contract. Line items were charged either as a lump sum or according to established minimum and maximum limits for each activity. Only site activities specifically bid in the contract were addressed during this phase of removal operations. Also, some of the line items bid were not completed; therefore, charges reflect the amount of work accomplished. Each line item charge included removal and disposal costs.

Activities for each line item are described in the following subsections, and a timeline of events is attached. All materials manifested off-site during the site-specific contract removal are listed in Table 1.

1.5.a.2 Line Item B.1 - Removal and Disposal of Friable Asbestos (01/04/88 - 02/28/88)

On January 4, 1988, SAFE-T-Environmental, Inc., initiated removal of a contract-specific amount of friable asbestos from the site. Asbestos was removed from Vault 4, the north hallway, and the

Bag-O-Matic room. A total of 49 yd³ of asbestos was removed from the site and transported for disposal to the Fairfield Sanitary Landfill in Amanda, Ohio. This item was completed on February 28, 1988, at a cost of \$146,468.00.

1.5.a.3 Line Item B.2.2 - Encapsulation of Friable Asbestos
(01/19/88 - 03/09/88)

In addition to asbestos removal, friable asbestos was also contained by encapsulation at the site. On January 19, 1988, SAFE-T-Environmental, Inc., initiated encapsulation of a contract-specific amount of friable asbestos. Plastic shrink wrap was used to encapsulate friable asbestos on a total of 8,442 linear feet of asbestos-wrapped pipes in the facility. The encapsulation effort was completed on March 9, 1988, at a total cost of \$34,443.36.

1.5.a.4 Line Item B.3.1 - Excavation and Disposal of PCB-Contaminated Soil from Wolf Creek (03/09/88 - 03/10/88)

Redbank Transport removed approximately 183 yd³ of PCB-contaminated soil and debris from the Dayton Tire site to CECOS International hazardous waste landfill in Williamsburg, Ohio, on March 9 and March 10, 1988. The material was loaded by IT and PEI personnel into Visqueen-lined 20-yd³ truck trailers positioned on Visqueen-coated cement loading areas. Most of the contaminated soil and debris was excavated from the north bank of Wolf Creek, which became contaminated during discharge of oil and water from the effluent pipe located directly south of the pump station.

1.5.a.5 Line Item B.3.2 - Excavation and Disposal of On-Site PCB-Contaminated Soil (02/07/88 - 02/28/88 and 04/11/88-04/15/88)

From April 11 to April 15, 1988, approximately 765 yd³ of on-site PCB-contaminated soil and debris was transported by Redbank Transport to the CECOS International hazardous waste landfill in Williamsburg, Ohio. This material was excavated from contaminated areas in the courtyard (those areas <20,000 ppm), around the pump station, and from areas near the underground effluent pipe extending from the pump station to Wolf Creek. The soils were excavated and staged from February 7 to February 28, 1988. During excavation of the courtyard, three buried railroad tank cars were also discovered. Subsection 1.5.10 (Line Item B.8) presents details concerning the excavation and decontamination of the tank cars.

TABLE 1

MATERIALS MANIFESTED OFF-SITE
 DAYTON TIRE AND RUBBER COMPANY - PHASE II
 DAYTON, OHIO
 November 16, 1987 to April 16, 1988

Waste Category	Quantity	Dates Removed	Disposal Site
Debris	445 yd ³	3/08/88, 3/09/88 3/14/88, 3/15/88 3/16/88, 3/17/88 3/22/88, 3/29/88 3/30/88, 4/14/88 4/15/88, 4/18/88	CECOS International Williamsburg, Ohio
Loose Asbestos	40 yd ³	1/29/88, 2/19/88	Fairfield Sanitary Landfill Amanda, Ohio
Soil from Wolf Creek	201 yd ³	3/09/88, 3/10/88	CECOS International Williamsburg, Ohio
Transformer Carcasses <50 ppm	34	1/07/88, 1/13/88 1/14/88, 1/18/88 2/18/88, 2/22/88 3/09/88, 3/10/88 4/02/88	American Compressed Steel Cincinnati, Ohio
Capacitors	43	3/10/88, 3/24/88	APTUS Coffeyville, Kansas
Metal Bands	33 yd ³	1/13/88, 3/08/88	American Compressed Steel Cincinnati, Ohio
KPEG-Treated Oil (Non-Hazardous)	14,167.30 gal	1/05/88, 1/08/88 1/12/88, 2/15/88 2/16/88, 2/18/88 2/23/88, 3/01/88 3/02/88	Clark Processing Dayton, Ohio

TABLE 1 (Continued)

MATERIALS MANIFESTED OFF-SITE
 DAYTON TIRE AND RUBBER COMPANY - PHASE II
 DAYTON, OHIO
 November 16, 1987 to April 16, 1988

Waste Category	Quantity	Dates Removed	Disposal Site
Liquids and Sludges	26,863 gal	1/08/88, 1/11/88 1/12/88, 1/13/88 1/29/88, 2/22/88 3/15/88	CECOS International Williamsburg, Ohio Clark Processing Dayton, Ohio
Soil from Trench Pipe	882.5 yd ³	3/02/88, 4/11/88 4/12/88, 4/13/88 4/14/88	CECOS International Williamsburg, Ohio
PCB-Contaminated Oil	25 drums	3/24/88	APTUS Coffeyville, Kansas
Transformers (>50 ppm)	7	2/18/88, 2/19/88	APTUS Coffeyville, Kansas

1.5.a.6 Line Item B.4 - Decontamination of Facility Surfaces
(12/27/87 - 3/27/88)

Between December 27, 1987, and March 27, 1988, surfaces in the facility were decontaminated by using shot-blasting, scabbling, and trichloroethylene (TCE). Initial cleaning efforts focused on transformer storage areas A and B (located on the roof of the facility). TCE, a chemical known to adsorb PCBs, was applied to contaminated surfaces in these areas. Subsequent core sampling of these areas, however, revealed that the TCE had not adsorbed the PCBs, but had driven the PCBs deeper into the concrete. Use of TCE was suspended when data on the core samples was received. When decontamination resumed, a scabbler was used to remove contaminated material.

A shot-blaster was mobilized to the site on January 4, 1988, and areas around Vaults 3 and 4 (located in the basement) were cleaned. A scabbler was added to the removal operation, and by February 19, 1988, a total of 22,500 square feet (ft²) of PCB-contaminated floors was cleaned. The scabbling and shot-blasting decontamination process of the floors produced a large quantity of contaminated material that required collection by the cleanup contractor and disposal in roll-off boxes, which were eventually transported off-site to a hazardous waste landfill. Because of the large number of PCB-contaminated areas throughout the Facility, the amount of contaminated debris exceeded the 100-yd³ limit of material permitted to be transported off-site as specified under the contract (Line Item B.9 - Removal and Disposal of Contaminated Debris). Consequently, floor decontamination was discontinued from February 21 to March 20, 1988, until a contract modification/increase to 500 yd³ was approved for Line Item B.9.

Floor decontamination resumed on March 23, 1988, and continued until April 2, 1988. The primary decontamination process used during this period was shot-blasting, and the basement area was the focus of decontamination efforts. Basement areas cleaned included Vault 3, Vault 4, Pump Room 1, and areas surrounding these locations. Transformer storage areas A and B (on the roof) were also decontaminated, as well as isolated areas in the Facility contaminated by tracking. At the end of the site-specific contract, a total of 67,600 ft² of Facility surfaces had been decontaminated.

1.5.a.7 Line Item B.5.2 - Decontamination of Transformer
Carcasses (12/08/88 - 04/02/88)

On December 8, 1988, transformer removal and decontamination began. A helicopter was used to remove fifteen transformers from the roof of the facility. Transformers were dismantled and the hardware was staged at the loading dock with the other

transformers. PCB-contaminated oil was drained from the transformers and treated using a sodium-polyethylene glycol (KPEG) unit (see Subsection 1.5.12, Line Item B.10.2 - On-Site Treatment of PCB-contaminated Oil). Transformers were rinsed with this oil and wiped down with kerosene until the PCB concentrations were < 50 ppm. The transformer carcasses (36 total) were removed and salvaged for scrap by American Compressed Steel of Cincinnati, Ohio. Five transformers could not be cleaned to < 50 ppm by this decontamination method and were transported to the Aptus facility in Coffeyville, Kansas.

1.5.a.8 Line Item B.6 - Removal and Disposal of Capacitors
(12/15/87 - 03/24/88)

On December 15, 1987, removal and staging of capacitors was initiated, and 43 capacitors were staged by December 17, 1987. The capacitors were staged until March 10, 1988, because completion of a dioxin analysis was required before the capacitors could be shipped for disposal. The dioxin analysis results were negative and 34 capacitors were shipped to the Aptus facility in Coffeyville, Kansas, on March 10, 1988. On March 24, 1988, the remaining 9 capacitors were shipped to the same facility for disposal.

1.5.a.9 Line Item B.7.2 - Decontamination of Metal Bands
(12/16/88 - 03/08/88)

Removal and decontamination of metal bands from transformers began on December 16, 1987. The bands were cleaned with KPEG-treated oil (see 1.5.a.12) before being transported for disposal, and on January 13, 1988, 8 yd³ of metal bands were transported to American Compressed Steel, where they were scrapped. By January 17, 1988, all metal bands were staged for disposal, and on March 8, 1988, the remaining 25 yd³ of metal bands were transported to the CECOS International facility in Williamsburg, Ohio, for disposal.

1.5.a.10 Line Item B.8 - Excavation and Removal of Hazardous/
Contaminated Materials from Three Buried Tank Cars
and Adjacent Areas (01/13/88 - 03/17/88)

Three buried railroad tank cars containing a non-hazardous, tar-like sludge were excavated from the southwest corner of the courtyard area for a lump sum cost of \$21,226.00. Tank car removal occurred from January 5, 1988, through March 16, 1988. The three empty tank cars were decontaminated and staged on-site.

1.5.a.11 Line Item B.9.1 - Removal and Disposal of Contaminated Debris (02/23/87 - 03/29/88)

During the cleanup action, a variety of PCB-contaminated material, such as building debris, personal protective clothing, and shot blaster and scabbler waste, was removed from the site. A total of 445 yd³ of contaminated debris was collected on-site during the period from December 23, 1987, to March 29, 1988. This material was periodically removed and transported to the CECOS International landfill in Williamsburg, Ohio. The final shipment of contaminated debris was transported to the disposal facility on April 18, 1988.

1.5.a.12 Line Item B.10.2 - On-Site Treatment of PCB-Contaminated Oil (12/15/87 - 03/02/88)

A Niagara Mohawk KPEG unit was brought on-site by IT Corporation to treat PCB-contaminated oils. The Niagara Mohawk unit is an alternative technology that uses the solvent dimethyl sulfoxide (DMSO) to break down the PCBs and allow them to react with the KPEG (a mixture of potassium hydroxide and polyethylene glycol). In this reaction, the chlorine groups of the PCBs are replaced by ethyl groups, thus rendering the PCBs nonhazardous. Treatment costs for a total of 14,167 gallons of oil to a PCB level below 2 ppm were \$126,372.32.

1.5.a.13 Line Item B.11.2 - On-Site Treatment of PCB-Contaminated Water (12/14/87 - 04/16/88)

On December 14, 1987, portable holding pools were installed to treat PCB-contaminated water on-site. The water treatment system consisted of an aluminum-based flocculent to separate the contamination from the water, and pools to hold the water and allow the flocculent to settle. Inclement weather and freezing temperatures, as well as leaks in the pool liners, delayed water treatment. By the end of February, the system was operational, and 23,412 gallons of treated water was discharged on the west end of the site. Before discharge, a sample was collected from the final holding pool to verify the effectiveness of the treatment. Treated water was discharged three additional times; the last discharge occurred on April 16, 1988. The total quantity of water treated and discharged was 74,920 gallons.

1.5.a.14 Line Item B.12.1 - Removal and Disposal of Hazardous Liquids and Sludges (01/05/88 - 03/16/88)

During the Phase II removal action, a total of 26,863 gallons of PCB-contaminated liquids and sludges was removed from three buried railcars located in the southwest corner of the courtyard area. The material was generated from mixing shot blast were the

chips PCB- contaminated ? and dust with the nonhazardous, tar-like sludge contained in the tank cars. Collection and periodic disposal of this material began on January 5, 1988, and was completed on March 16, 1988. All contaminated material was transported for disposal to Clark Processing, Inc., in Dayton, Ohio. The total cost for this task was \$78,708.59.

1.5.a.15 Line Item B.13.1 - Dioxin Extent-of-Contamination Study, Including Preparation, Sampling, and Analysis (11/23/87 - 01/13/88)

Evidence of fires during the transformer salvaging operation suggested that incomplete combustion of the PCB-contaminated oil in the transformers had resulted in the formation of dioxins and furans. To determine the extent of dioxin and furan contamination, PEI conducted a sampling program in Vaults 1 through 4 and in Switch Rooms 1 and 2. In these six areas, the PEI sampling team collected a total of 119 swipe samples from floors, walls, ceilings, and equipment surfaces. Sampling was performed on November 23 and 24, 1987, and on January 13, 1988.

All swipe samples were analyzed for PCBs. The PCB analysis served as an indicator of possible dioxin and furan contamination. Based on data from the PCB analysis, sixteen swipe samples (12 from PEI and 4 from the U.S. EPA) were submitted to off-site laboratories for analysis of total tetra-, penta-, hexa-, hepta-, and octachlorinated dibenzo-p-dioxin and dibenzofuran homologues. Because PCB concentrations were low in Vaults 1 and 2, no samples from these areas were submitted for dioxin and furan analysis.

No tetrachlorodibenzo-p-dioxin (TCDD) was detected in swipe samples collected in Vaults 3 or 4. However, tetrachlorodibenzo-p-Furan (TCDF) was detected in samples from both Vaults 3 and 4. The total 2,3,7,8-TCDD equivalence of the samples was below the 1 nanogram per 100 square centimeters (ng/100 cm²) calculated cleanup standard. No TCDD was detected in swipe samples from Switch Room 1 or 2. TCDF was detected in Switch Room 1 and 2; however, the total 2,3,7,8-TCDD equivalence of these samples was below the 1 ng/100 cm²) calculated cleanup standard.

The total cost of the dioxin extent-of-contamination study was \$109,644.00. This total included costs for study preparation, sampling, and analysis.

1.5.a.16 Line Item B.14 - Provision of a Storage Facility and Securing/Storing of Dioxin-Contaminated Material

No charges for Line Item B.14 were incurred because the dioxin extent-of-contamination study revealed that no dioxin or furans were present at concentrations above the cleanup standard.

1.5.a.17 Line Item B.15 - Extent-of-Contamination Study
(11/16/87 - 03/30/88)

The U.S. EPA contracted with PEI to conduct an extent-of-contamination study that would identify hazardous substances located at the site. The investigation focused on defining areas on the roof and floors of the facility affected by PCB-contaminated oil spills, tracking, and soil contamination, and on ground water quality. Results of this investigation were documented by PEI in "Extent-of-Contamination Study for the Dayton Tire and Rubber Company Site (Results of Investigations Completed Under CLIN 13 and CLIN 15)," U.S. EPA Contract No. 68-W8-0022, PEI Project No. 3767, dated April 9, 1988.

PEI collected over 650 swipe samples for PCB analysis from building and equipment surfaces located in the Facility. Analysis was based on the 10 micrograms per 100 square centimeters (ug/100 cm²) cleanup standard for PCBs as specified in 40 CFR 761.125 (c)(4)(iii). Contaminated areas of the roof were also sampled using the same analysis criterion.

PEI also collected soil core samples for PCB analysis. Soil samples were collected from several locations around the transformer E concrete pad (located directly north of the pump station), from the pump station, and courtyard areas. To ensure the removal of all contaminated soil, the U.S. EPA also directed PEI to sample the soil around the effluent pipe from the pump station to Wolf Creek, which had been excavated in February 1988.

In December 1987, PEI installed 10 on-site ground water monitoring wells to determine whether substances on the U.S. EPA Hazardous Substance List were present. The wells, between 28 and 30 feet in depth, were usually completed in wet sand and gravel. Two wells were placed upgradient of the facility to analyze background water quality, and six wells were installed downgradient of the facility (to the south and east) to determine if any contaminants from the site were being released into the ground water. One well was placed near several former drum storage areas located in a building west of the facility, and one well was installed on the west side of the property to determine background ground water quality. Analytical results revealed no PCBs or pesticides in any of the samples.

1.5.a.18 Line Item B.16 - Site Management (11/16/87 - 04/02/88)

The maximum of 90 days for site management time was reached on April 2, 1988, at a total cost of \$285,603.30. Site management costs were allotted to cover the costs of administrative overhead, site personnel, trailer and office equipment rental, and other miscellaneous costs. Line Items B.3.2 and B.11 (disposal of soils and on-site water treatment, respectively) were completed after site management time had elapsed.

1.5.b Phase III Federal Removal Action

To mitigate the imminent and substantial threats to human health and the environment at the Dayton Tire facility, U.S. EPA commenced Phase III of the removal action at the Dayton Tire site on October 17, 1988, under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. U.S. EPA and the ERCS contractor, PEI, coordinated the removal action (Delivery Order No. 7460-05-107).

During the first half of the removal action (October 1988 through January 1989), PEI subcontracted work operations to OHM. In conjunction with several subcontractors, PEI performed the necessary remediation action (February through August 1989). The following subcontractors assisted PEI: Westinghouse/Haz-Tech of Toledo, Ohio; U.S. Abatement of Hamilton, Ohio; and Bel-Par of Cincinnati, Ohio. The TAT provided support to the USEPA during all phases of the removal action.

The Phase III removal action at the Dayton Tire site consisted of the following activities:

1. Removal and disposal of PCB-contaminated soil, water, sludges, and debris.
2. Decontamination of PCB-contaminated surfaces, underground drainage pipes, and equipment.
3. Removal and disposal of hazardous waste drums.
4. Removal and/or containment of loose and friable asbestos-containing materials.

1.5.b.1 Excavation and Disposal of Soils and Building Debris from the Courtyard Area

The courtyard area (located on the south side of the main building) was documented to contain elevated levels of PCB contamination in soils, concrete, and building materials as

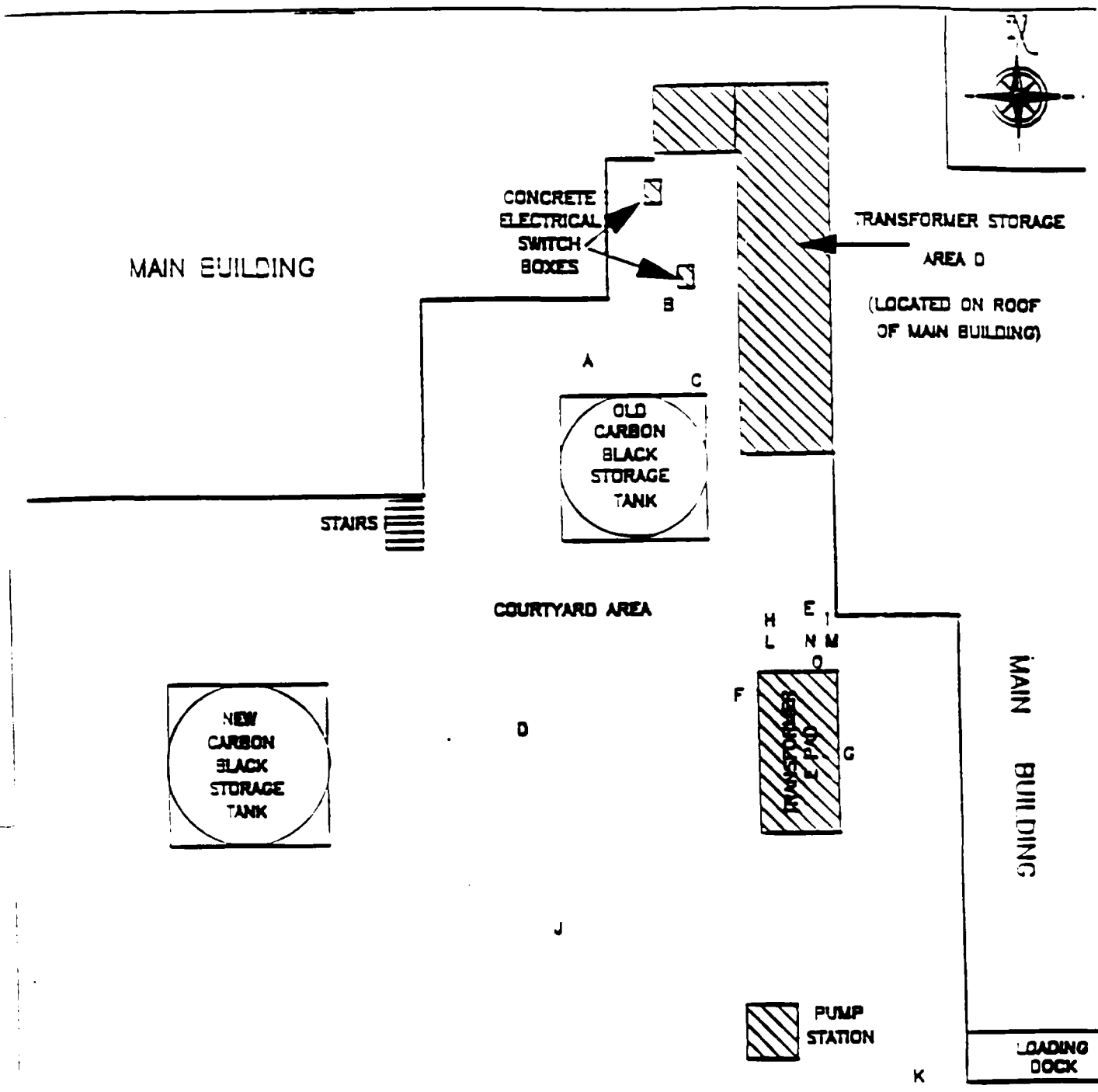


FIGURE 5

LEGEND



CONCRETE AREAS THAT WERE DEMOLISHED--PHASE III

E : POST CLEAN-UP SOIL SAMPLE LOCATIONS--PHASE III

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
EMERGENCY AND ENFORCEMENT RESPONSE
BRANCH

a result of illegal dumping of PCB-contaminated oil by transformer salvagers (PEI, 1988). Figure 5 indicates the portions of the main building (Transformer D) that were demolished to remove PCB-contaminated concrete walls, floors, and other building material. Transformer E (15-by-15-foot concrete storage pad) was also demolished to remove PCB-contaminated concrete and to allow soil excavation beneath the pad. In addition, the pump station located on the south side of the courtyard area and two electrical switch boxes (located north of the old carbon storage tank) were demolished to remove PCB-contaminated concrete, drainage pipe, sludge, and soil.

PCB-contaminated soil was removed to various depths from areas north and east of the old carbon black storage tank; from areas directly west, north, and beneath the Transformer E storage pad; and from around and beneath the pump station (Figure 5). The PCB concentrations in soil from these areas exceeded the cleanup standard of 25 ppm for restricted access, low-contact outdoor areas, as defined by 40 CFR Part 761 (PEI, 1988). Excavation continued in each area until post-removal composite soil samples, collected by TAT at depths of 0 to 1 foot below the excavated surface, indicated PCB concentrations below the cleanup criterion. Soil samples were analyzed by Hayden Environmental Group, Inc. (HEG), of Miamisburg, Ohio (Appendix S). Figure 5 shows sample locations. Areas north of the Transformer E pad and around the pump station were excavated to a depth of 10 to 12 feet before the cleanup standard was achieved.

The PCB-contaminated soil and building debris were transported by truck from the courtyard to a staging area located on the west end of the site. Between November 1988 and May 1989, approximately 1,340 yd³ of PCB-contaminated soil and building debris was removed from the courtyard area, and 1,290 yd³ of this material was shipped via railcars (provided by CSX Transportation, Cincinnati, Ohio), to the US Pollution Control, Inc., Grayback Mountain landfill, located near Clive, Utah, in January 1989. Included in this amount was contaminated soil that had been excavated and staged during Phase II (from a trench extending from the pump station to the banks of Wolf Creek). The remaining material (50 yd³) was hauled by Hazardous Materials Transport (HMT) of Cincinnati, Ohio, via truck to the Chemical Waste Management (CWM) hazardous waste landfill located in Emelle, Alabama, in May 1989. Table 2 documents the quantities shipped and transportation dates.

During train car loading operations, the TAT conducted air monitoring to ensure that nearby residences (located approximately 200 feet north of the loading zone) were not at risk from airborne dust/contaminants emitted during the loading process.

TABLE 2

TRANSPORTATION/DISPOSAL LOG OF
WASTE STREAMS REMOVED AND DISPOSED FROM
DAYTON TIRE AND RUBBER COMPANY
PHASE III REMOVAL ACTION
DAYTON, OHIO
January through August 1989

Waste Category	Quantity Removed	Removal Date	Disposal Location	Disposal Method
PCB Soil and Debris	47 yd ³	1/06/89	USPCI ^a , Clive, Utah	LF ^b
PCB Soil and Debris	49 yd ³	1/06/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	62 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	50 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	75 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	75 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	75 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	75 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	75 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	90 yd ³	1/10/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	65 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	49 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	47 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	47 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	45 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	48 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	69 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	39 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	57 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	36 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	59 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Soil and Debris	56 yd ³	1/11/89	USPCI, Clive, Utah	LF
PCB Oil	25 drums	2/20/89	APTUS, Coffeyville, KS	INCIN ^c
PCB Electrical Switch	1 switch	2/20/89	APTUS, Coffeyville, KS	LF
PCB Debris	25 yd ³	2/25/89	CWM ^d , Emelle, Alabama	LF
PCB Debris	18 yd ³	2/25/89	CWM, Emelle, Alabama	LF
PCB Debris	25 yd ³	3/14/89	CWM, Emelle, Alabama	LF

(Continued)

TABLE 2 (Continued)

TRANSPORTATION/DISPOSAL LOG OF
WASTE STREAMS REMOVED AND DISPOSED FROM
DAYTON TIRE AND RUBBER COMPANY
PHASE III REMOVAL ACTION
DAYTON, OHIO
January through August 1989

Waste Category	Quantity Removed	Removal Date	Disposal Location	Disposal Method
Asbestos	23 yd ³	3/15/89	RF ^c , Modoc, Indiana	LF
Asbestos	41 yd ³	3/21/89	RF, Modoc, Indiana	LF
Asbestos	35 yd ³	3/29/89	RF, Modoc, Indiana	LF
PCB Debris	18 yd ³	4/06/89	CWM, Emelle, Alabama	LF
Asbestos	35 yd ³	4/11/89	RF, Modoc, Indiana	LF
Asbestos	13 yd ³	4/14/89	RF, Modoc, Indiana	LF
PCB Debris	25 yd ³	4/25/89	CWM, Emelle, Alabama	LF
PCB Soil	25 yd ³	5/09/89	CWM, Emelle, Alabama	LF
PCB Soil	25 yd ³	5/10/89	CWM, Emelle, Alabama	LF
PCB Debris	30 yd ³	5/12/89	CWM, Emelle, Alabama	LF
Non-haz. Debris	30 yd ³	5/17/89	City of Dayton	LF
PCB Oil	500 gal	5/20/89	APTUS, Coffeyville, KS	INCIN
PCB Debris	20 yd ³	5/22/89	CWM, Emelle, Alabama	LF
Non-pumpable Grease	5 Drums	5/30/89	Clarke, Dayton, Ohio	RECY ^f
PCB Debris	30 yd ³	6/05/89	CWM, Emelle, Alabama	LF
Non-haz. Waste Oil	330 gal	6/26/89	Clarke, Dayton, Ohio	RECY
Gasoline/Diesel	1 Drum	6/26/89	Clarke, Dayton, Ohio	RECY
Solidified Paint	3 Drums	6/27/89	ENSCO, El Dorado, AR	INCIN
PCB Sludge/Debris/Oil	20 Drums	6/27/89	ENSCO, El Dorado, AR	INCIN
Asbestos	5 yd ³	6/29/89	RF, Modoc, Indiana	LF
PCB Decon. Water	5,000 gal	7/07/89	APTUS, Coffeyville, KS	INCIN
PCB Decon. Water	5,000 gal	7/11/89	APTUS, Coffeyville, KS	INCIN
PCB Debris	20 yd ³	7/12/89	CWM, Emelle, Alabama	LF
Solvent Waste	2 Drums	7/13/89	PCI ^g , E. Chicago, IN	INCIN
Paint Liquid	2 Drums	7/13/89	PCI, E. Chicago, IN	INCIN
B-G-J Composite	2 Drums	7/13/89	PCI, E. Chicago, IN	INCIN
1,1,1 Trichloroethane	2 Drums	7/13/89	VA ^h , Dayton, Ohio	RECY
PCB Decon. Water	5,000 gal	7/14/89	APTUS, Coffeyville, KS	INCIN
PCB Debris	20 yd ³	7/18/89	CWM, Emelle, Alabama	LF
Caustic Drums	2 Drums	8/08/89	Ecolotech, Dayton, OH	RECY
Acid (H ₂ SO ₄)	1 Drum	8/08/89	Ecolotech, Dayton, OH	RECY
KPEG	3 Drums	8/08/89	APTUS, Coffeyville, KS	INCIN

^aUnited States Pollution Control Industries

^bLandfill

^cIncinerator

^dChemical Waste Management

^eRandolph Farms, Inc.

^fRecycling Facility

^gPollution Control Industries of America

^hValley Asphalt Company

Two high-volume air samplers, powered by portable generators, were placed across the railroad tracks (to the north), and downwind (to the east) of the main loading area (Figure 3). Analysis of the air samples indicated that the concentration of dust particles was very low during loading operations (Appendix S). In addition, real-time data were collected with a mini real-time aerosol monitor (miniRAM). No readings above background levels were detected by the mini-RAM during loading operations.

1.5.b.2 Demolition of Transformer Area B

Surface swipe samples collected from Transformer Area B (on the roof of the main building) indicated elevated PCB levels up to 370,000 ug/100 cm² (PEI, 1988). To further define the extent of contamination, on January 30, 1989, PEI and TAT collected concrete core samples to a depth of 3.5 feet. Analytical results indicated PCB levels up to 45,700 ug/100 cm² at a 1-foot depth, and 33,700 ug/100 cm² at a 3.5-foot depth (Appendix S). Based on these analyses, U.S. EPA determined that demolition and off-site disposal of the contaminated concrete would be the best method of decontamination for Transformer Area B. On February 15, 1989, PEI initiated removal operations with jackhammers. Approximately 43 yd³ of contaminated concrete debris was removed, deposited in two 30-yd³ roll-off boxes, and transported to the CWM hazardous waste landfill in Emelle, Alabama, on February 25, 1989 (Table 2). The thickness of the concrete in this area, in addition to the intricate framework of the concrete reinforcement, unexpectedly prolonged the jackhammer removal operations.

1.5.b.3 PCB Decontamination of the Main Building Floor

Decontamination Options

PCB contamination in the DTR main building initially occurred in isolated areas where copper scavengers spilled PCB-contaminated oil from electrical transformers. The PCB contamination was concentrated inside the electrical transformer storage vaults and electrical switch rooms (Figures 3 and 4). Widespread PCB contamination from these isolated source areas subsequently resulted via tracking and flooding. Analytical results of a surface extent-of-contamination study indicated PCB levels between 500 and 1,000 ug/cm² in the areas where the PCB-contaminated oil was initially spilled, and between 10 and 100 ug/cm² along pathways radiating from the original contamination areas (PEI, 1988). Procedures implemented to clean the PCB-contaminated floor surfaces during the Phase II removal action included scabbling, shot-blasting, and solvent extraction. Because of the large area of floors contaminated with PCBs, however, these methods were very costly and time-consuming.

Consequently, the U.S. EPA requested that PEI and TAT conduct bench-scale tests to investigate alternative methods for decontamination of floor surfaces in the main building. The purpose of the bench-scale tests was to determine an effective, cost-efficient method to achieve the PCB cleanup standard for low-contact, indoor, non-impervious solid surfaces [specified as 10 ug/100 cm² in 40 CFR 761.125 (c)(4)(iii)]. Subpart G, Section 761.123, defines "nonimpervious solid surfaces" to mean "solid surfaces which are porous and are more likely to adsorb spilled PCBs prior to completion of cleanup requirements".

Between December 16, 1988, and January 5, 1989, tests were performed on PCB-contaminated floors at the main building of the Dayton Tire site, using three contaminant reduction materials: 1) a chemical reagent developed by PEI called SEA/Marconi; 2) a commercially manufactured acetone latex solution; and 3) a commercially produced industrial surfactant solution. Results were presented to U.S. EPA in a letter report ("Experimental Study of Chemical and Physical Methods at Dayton Tire," PEI Associates, Inc., Project No. 1107-10-1, January 23, 1989). Documentation of the bench-scale investigations is included in Appendix U. After evaluating the test results, U.S. EPA concluded that the industrial surfactant was the most effective and cost-efficient material. The surfactant, an industrial cleaner/degreaser consisting primarily of sodium hydroxide and sodium phosphate, was purchased through a local supplier.

Main-Level Floor Decontamination/Encapsulation

Based on analytical results from the PCB extent-of-contamination study performed during the Phase II removal action (PEI, 1988), floor decontamination locations were identified. On the Main Level, decontamination focused on four locations: the Drum Storage Area, Switch Rooms 1 and 2, the Pipe Trench, and in and around the Power House (Figure 3). From February 23 to April 16, 1989, cleanup personnel used the industrial surfactant to decontaminate approximately 68,000 ft² of floor area on the Main Level of the Dayton Tire Facility. In addition to the Main Level, small areas of the Mezzanine Level and areas in and around the Cement House were also decontaminated during this time. The decontamination process included the following steps: 1) sweeping the floor surface to remove residuals; 2) applying a 1:2 mixture of surfactant and water to the affected floor area; 3) scrubbing the concrete surface with an industrial floor buffer equipped with a steel brush pad; and 4) collecting the decontamination solution with a water vacuum into a 55-gallon drum. In areas where PCB contamination levels were elevated, the process was repeated several times to ensure decontamination. The collected decontamination solution was stored on-site in

aboveground storage pools (10,000- to 12,000-gallon capacity) until disposal arrangements were finalized. During the decontamination process, two or three crews (three cleanup technicians constituting each team) worked simultaneously.

The TAT collected additional surface swipe samples from floor surfaces following decontamination to confirm that the cleanup criterion had been met. Composite surface swipe samples, consisting of four hexane-soaked gauze pads, were collected over an 800-ft² area. Swipe sampling methodology followed the "Guide for Decontaminating Buildings, Structures, and Equipment at Superfund Sites" (EPA-600/2-85/028, March 1985). Sample results were compiled on a site map to provide a clear definition of cleanup progress, and to identify areas requiring additional decontamination to meet the cleanup standard. Analytical results of the sampling are presented in Appendix S. HEG and Belmonte Park Laboratories (BPL) of Dayton, Ohio, analyzed the samples in accordance with U.S. EPA extraction methods.

Within three to five days after samples were submitted to the laboratories, the swipe sample results were received on-site. Although the decontamination process reduced PCB levels below 100 ug/100 cm² in all affected areas, contamination levels in a few isolated areas remained above the PCB cleanup standard of 10 ug/100 cm². These areas were encapsulated in accordance with 40 CFR 761.125 (c)(3)(iii), which states that ". . . nonimpervious solid surfaces will be cleaned to either 10 ug/100 cm² or to 100 ug/100 cm² and encapsulated." The clear, liquid encapsulation material was applied to the dry floor surfaces with an airless sprayer. Yellow paint was applied after the material had settled and dried (approximately 24 to 48 hours) to identify encapsulated areas. On the Main Level, approximately 8,800 ft² of floor area was encapsulated.

Basement-Level Floor Decontamination

Decontamination of PCB-contaminated floor surfaces in the Basement Level of the main building at the DTR site commenced on April 17, 1989, and continued until May 19, 1989. Decontamination, encapsulation, and swipe sampling methods employed during removal activities on the Main Level were also used in the Basement Level. Approximately 71,600 ft² of PCB-contaminated basement floor area, which was identified from samples collected during the Phase II removal action (PEI, 1988), required decontamination. Basement floor washing and encapsulation focused primarily on Vaults 1, 2, 3, and 4, and the Locker Room (Figure 4). Some basement areas contained standing water, which required pumping before decontamination and encapsulation

procedures could proceed. Following completion of floor decontamination in the Basement Level, confirmatory surface swipe samples were collected by TAT. The sample results are presented in Appendix S. Approximately 13,200 ft² of basement floor area was encapsulated by spraying with a clear, epoxy-based sealant to achieve the PCB cleanup criteria.

Power Washing of Equipment

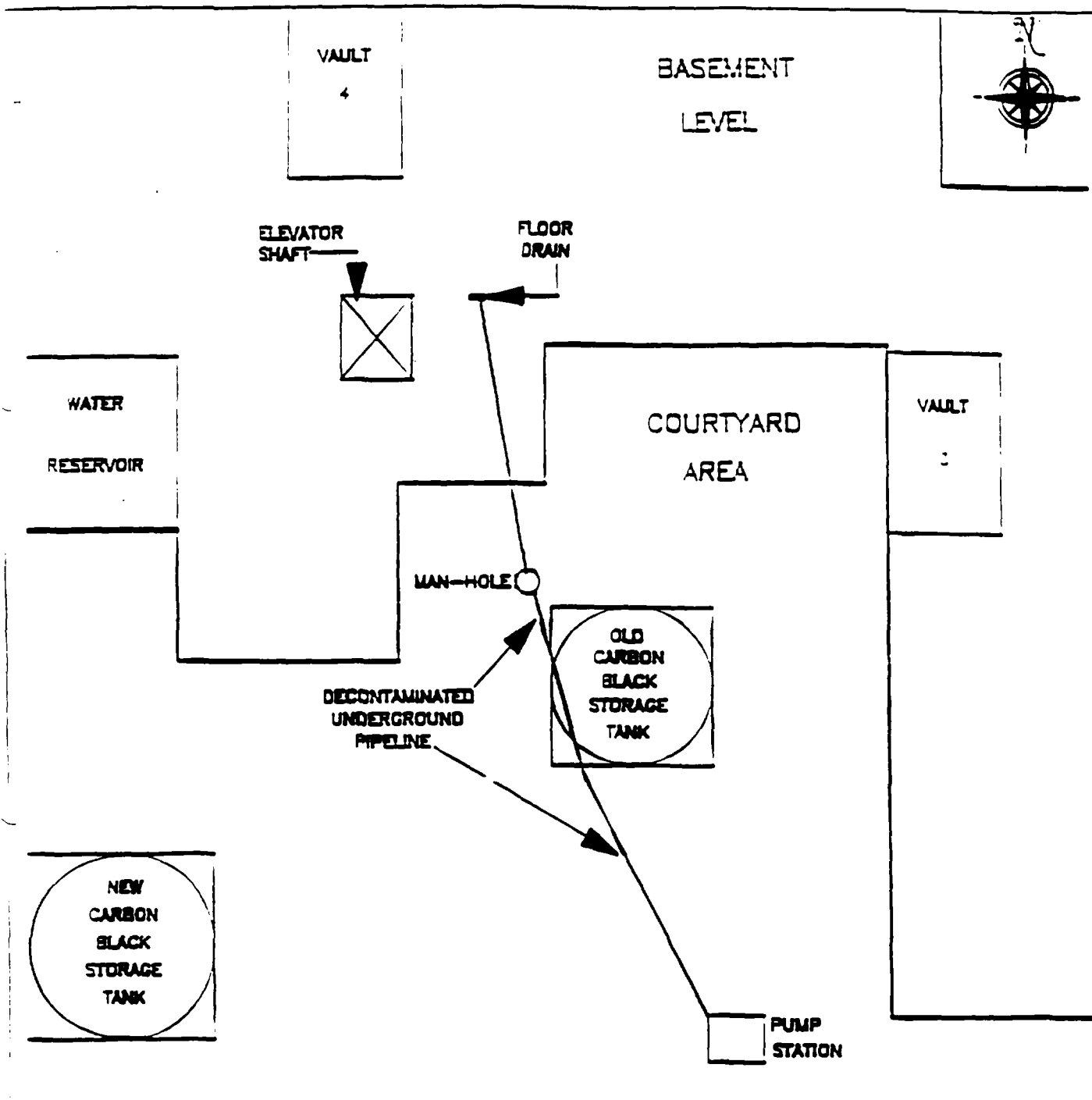
Between April 18 and 25, 1989, several large-scale electrical motors and metal debris (located on the east side of Vault 4) were decontaminated with surfactant solution, brushes, and a power washer. The bases of the motors and nearby debris had become contaminated when PCB-contaminated oil in electrical transformers was spilled onto the floor area surrounding Vault 4 (PEI, 1988). During cleanup of this area, contaminated wood and other debris were deposited in a hazardous waste roll-off box and shipped to the CWM landfill in Emelle, Alabama, on April 25, 1989 (Table 2). Decontamination water was collected in 55-gallon drums and pumped to aboveground storage pools located on the Main Level. Following decontamination, the cleaned equipment was staged against the wall east of Vault 4.

Decontamination of the Water Reservoir

The 40-by-60-foot Water Reservoir located in the basement (Figure 4) contained PCB-contaminated sludge, which was removed and drummed on May 9, 1989. Analytical results from samples of this sludge (collected by TAT in February and April 1989) indicated PCB levels between 52 and 72 ppm (Appendix S). On June 27, 1989, five 55-gallon drums of the contaminated sludge were transported by ENSCO Environmental, Inc. (ENSCO), for disposal at its incineration facility in El Dorado, Arkansas (Table 2).

1.5.b.4 Underground Drainpipe Cleaning

Between April 10 and 11, 1989, a 24-inch underground storm sewer drainpipe was decontaminated by Bel-Par, a cleanup subcontractor to PEI. The drainpipe extended approximately 525 feet from a large basement floor drain (located on the east side of the elevator shaft, south of Vault 4) to the site of the former pump station (Figure 6). Contamination of the drainpipe occurred when PCB-contaminated oil spilled from Vault 4 and was transported to the floor drain during basement flooding episodes (PEI, 1988). A manhole cover located on the northwest corner of the old carbon storage tank (Figure 6) provided access to the drainpipe. Using



LEGEND

54: LOCATIONS OF SWIPE SAMPLES

 : DECONTAMINATED FLOOR SURFACES

 : ENCAPSULATED FLOOR SURFACES

FIGURE 6

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
EMERGENCY AND ENFORCEMENT RESPONSE
BRANCH

Using a high-pressure water system, Bel-Par personnel flushed the drainpipe several times until all residuals and oil were removed. Approximately 5,000 gallons of decontamination water was pumped from the manhole opening to aboveground storage tanks (staged inside the main facility) during the cleaning process.

1.5.b.5 Removal and Disposal of Containerized Hazardous Waste

Compatibility testing, waste compositing, sample analyses, and disposal of containerized hazardous waste took place between December 1988 and August 1989. All hazardous and unknown waste containers on-site were staged by cleanup personnel at the far west end of the main building of the Facility. The material was derived primarily from several hundred abandoned 55-gallon drums, paint cans, and laboratory chemicals scattered throughout on-site buildings. Some of the waste products had been left on-site at the conclusion of Phase I and II removal activities. These included drums of solvents, PCB-contaminated oils, fuel, and potassium polyethylene glycolate (KPEG). In addition, PCB-contaminated oil was pumped from an electrical switch into a 55-gallon drum and staged with the waste drums.

A total of 4,125 gallons of hazardous waste was transported (either in drums or bulk tanker) to various disposal facilities between February and August 1989. Waste streams, transportation dates, and disposal facilities are presented in Table 2. Waste profile sheets, transportation manifests, and laboratory analyses of composite waste groups are presented in Appendices N, O, and V, respectively. Prior to drum shipment, cleanup personnel wiped any residual materials from the drum surfaces and placed damaged drums into 85-gallon overpack drums.

1.5.b.6 Asbestos Abatement

During Phase II removal activities (November 1987 to April 1988), contractors removed approximately 40 yd³ of asbestos material from pipelines along the north side of the main building of the Dayton Tire site and also shrink-wrapped another 9,000 linear feet of asbestos-lined pipe (Delivery Order No. 7460-05-107). In addition, ESCOR, Inc., of Northfield, Illinois, performed a survey to estimate the quantity of friable asbestos remaining in the main building. Based on the estimate by ESCOR, Inc., and subsequent walk-through surveys conducted by the U.S. EPA and their contractors, the following tasks were proposed and completed during the Phase III removal action to remove any potential threat to the environment and public (especially to

occupants of residences located 200 feet north of the site) posed by asbestos-containing material (ACM) possibly emanating from the Dayton Tire facility:

1. Enclose entrances and windows to the Power House with boards and brick.
2. Remove and dispose of all ACM from the Bag-O-Matic Room and Pipe Trench.
3. Remove or encapsulate loose and friable ACM located along the north side of the main building.
4. Provide maps to estimate the quantity of ACM remaining at the site.

Boarding and Bricking of the Power House

During walk-through surveys of the main building, the Power House was observed to contain a large quantity of ACM, much of it loose and friable from weather exposure. To alleviate the threat of off-site asbestos fiber migration and the possibility of illegal entry, this portion of the facility was closed off. Cleanup personnel installed plywood boards over all windows to the Power House, with the exception of several intact, south-side, inaccessible third-story windows. In addition, all interior and exterior entrances to the Power House were sealed with brick to prevent unwarranted access, and portions of an adjacent cement railroad trestle on the north side of the Power House were demolished to prevent access to the roof of the Power House. OHM completed these tasks between October 20 and November 10, 1988.

Removal of ACM from the Bag-O-Matic Room and Pipe Trench

Under a fixed-price/dollars-per-yd³ contract with PEI, U.S. Abatement removed approximately 147 yd³ of ACM from the Bag-O-Matic Room (BOMR) and the Pipe Trench (PT) between February 27 and April 15, 1989 (Figure 3). U.S. EPA OSC Cisneros and an industrial hygienist from PEI coordinated the project and established air monitoring procedures.

Before asbestos abatement was initiated, critical barriers were established at all openings of the BOMR and PT. Asbestos filtration devices were also installed, which created negative pressure work areas with a minimum of four air changes per hour. All ACM removed from pipes, floors, and machinery in the BOMR and PT was sealed in 6 mil, double-lined asbestos disposal bags and placed into a 30-yd³ roll-off box for transportation and disposal.

Table 2 presents ACM disposal data. After all bulk ACM was removed, a power washer was employed during final cleaning of floor areas. Decontamination water generated during the power washing process was collected, filtered, and discharged on-site. To prevent migration of any remaining asbestos fibers, U.S. Abatement, Inc., personnel applied a sealant to all surfaces in the BOMR and PT before final clearance air samples were collected.

Throughout the removal and decontamination phases, PEI conducted daily air monitoring in compliance with the National Institute for Occupational Safety and Health Administration (NIOSH) Method 7400 and Occupational Safety and Health Administration Regulation 29 CFR 1926.58. All samples were analyzed by the PEI laboratory in Cincinnati, Ohio, and sample results were reported to U.S. EPA within 24 hours of the end of the previous work shift (Appendix K). Prior to dismantling containment barriers, PEI collected air samples inside work areas to verify that airborne fiber levels were below the U.S. EPA final clearance level of 0.05 fibers per cubic centimeter (f/cm³).

Removal of ACM Along the North Side of the Main Building

To reduce the potential threat of asbestos fiber migration into the residential area immediately north of the site, bulk ACM material deposited on the floor along the north side of the main building was bagged and removed.

Between June 19 and June 21, 1989, U.S. Abatement, Inc., removed and bagged approximately 5 yd³ of loose and friable ACM from the floor along the north side of the main building and from a small laboratory room located east of the Power House (Figure 3). After all bulk debris was removed, a HEPA vacuum was used to remove any remaining debris. In addition, exposed ACM remaining on pipelines along the north side of the main building (approximately 120 feet) was wrapped in two layers of 6-mil Visqueen and covered with aluminum sheathing. After the asbestos removal was completed, personnel of U.S. Abatement, Inc., sprayed floor areas and the covered pipes with a bridging encapsulation material.

During this asbestos removal phase, PEI continued to enforce all applicable OSHA and NIOSH air monitoring requirements (Appendix BB). To ensure that no fibers were migrating from the site before, during, or after the asbestos removal, PEI installed an air monitoring station immediately outside a garage door opening on the north side of the building (Figure 3). All air monitoring results indicated asbestos fiber levels below 0.05 f/cm³ (Appendix K). In addition, PEI and TAT sampled pipes located on the roof just above the northeast corner of the BOMR that were suspected of ACM contamination.

Portions of the cloth wrapping around the pipes had deteriorated and exposed a white, granular insulation material. However, asbestos sample analysis reports submitted to U.S. EPA by PEI on June 7, 1989, indicated that no asbestiform mineral fibers were contained in the exposed material (Appendix K).

Remaining ACM in the Main Building

In May 1989, PEI presented maps to U.S. EPA designating locations of the remaining ACM and suspected ACM at the Dayton Tire site. The maps, which included information collected by PEI, TAT, and U.S. EPA from photo documentation and walk-through surveys, indicated locations of asbestos-wrapped pipelines and asbestos-covered tanks in all on-site buildings. Additionally, pipelines insulated with suspected ACM (e.g. fireproofing, layered-paper, preformed block, air-cell, and fiberglass with cementitious insulation) were also included on the maps (Appendix K). On May 25, 1989, the ACM location maps were presented to health and environmental officials from the City of Dayton.

1.5.b.7 Removal and Disposal of PCB-Contaminated Water, Debris, and Sludge

PCB-Contaminated Water

During the Phase III removal action, cleanup of PCB-contaminated floor, equipment, and underground pipes generated approximately 30,000 gallons of decontaminated water. This water was stored on-site in 18-foot-diameter, aboveground storage pools (10,000- to 12,000-gallon capacity) near the Drum Storage Area (Figure 3). To reduce disposal costs, 24 evaporation beds (18 by 18 feet) were constructed on-site, the use of which reduced the volume of contaminated water by 15,000 gallons. The evaporation process began in April and continued through June 1989. Approximately 2,000 gallons of water were evaporated on a daily basis. Daily evaporation rates declined significantly during May because of frequent and heavy precipitation. Cleanup personnel refilled and covered the beds as necessary during the evaporation process.

The remaining decontamination water (approximately 15,000 gallons) was shipped via bulk tankers to the Aptus, Inc., disposal incinerator in Coffeyville, Kansas, on July 7, 11, and 14, 1989 (Table 2).

PCB-Contaminated Debris and Sludge

Approximately 163 yd³ of PCB-contaminated debris and sludge was removed from the Dayton Tire site and disposed of at the CWM hazardous waste landfill in Emelle, Alabama.

Most of the material consisted of debris removed from contaminated floor surfaces during washing activities, contaminated personal protective clothing, storage pool and evaporation bed construction materials, and accumulated sludge from the aboveground storage pools. Pool sludge was solidified with a mixture of lime and kiln dust before transport off-site. The final shipment of contaminated debris and sludge was transported to the CWM landfill on June 18, 1989. In addition, one 30-yd³ roll-off box containing non-hazardous debris was shipped to a local sanitary landfill on May 17, 1989. Table 2 lists transportation dates and quantities shipped; transportation manifests are included in Appendix O.

1.6 Community Relations

A Community Relations Plan was prepared for the Dayton Tire and Rubber Company site on March 31, 1988.

A number of articles appeared in Ohio newspapers, such as the Dayton Daily News and the Cincinnati Enquirer, as well as news coverage on local television and radio stations at various times from 1987 to 1989. On December 14, 1987, U.S. EPA conducted a media tour at the Facility.

During the Phase II and Phase III removals, officials from the City of Dayton Department of Water and Safety and Risk Coordinators visited the site and were briefed by the U.S. EPA OSC concerning site activities. OSC Simes also conducted several public meetings. In addition, local officials were informed of site progress by weekly U.S. EPA OSC Pollution Reports (POLREPs).

On February 26, 1988, officials from U.S. EPA, OEPA, and the City of Dayton met to discuss issues concerning the cleanup at the Dayton Tire site. Discussions focused on dioxin sampling, extent of PCB floor contamination, PCB contamination outside the facility, and asbestos abatement. U.S. EPA informed officials at the meeting that the volume of dioxin at the site appeared to be minimal, and if any dioxin-contaminated material accumulated, it would be disposed of at the CECOS hazardous waste landfill. Other information disclosed by U.S. EPA stipulated that removal of the carbon black on the floors of the facility would probably reduce PCB concentrations significantly; that the power house would be boarded up to contain asbestos waste; and that outside PCB cleanup (e.g., contaminated soils, concrete, building walls) would be addressed by U.S. EPA under the ERCS contract.

On May 25, 1989, U.S. EPA OSC Cisneros conducted a post-cleanup walk-through tour of the main building of the Dayton Tire site for officials from local and state environmental health agencies to provide interested personnel with the opportunity to inspect

TABLE 3

SUMMARY OF DAILY CONTRACTOR COSTS*

DAYTON TIRE AND RUBBER COMPANY - PHASE II

DAYTON, OHIO

December 7, 1987 - June 10, 1988

<u>DATE</u>	<u>DAILY TOTAL</u>	<u>CUMULATIVE TOTAL</u>
12-07-87	\$ 3,173.37	\$ 3,173.37
12-08-87	3,173.37	6,346.74
12-09-87	3,173.37	9,520.11
12-10-87	3,173.37	14,447.88
12-11-87	3,173.37	17,621.25
12-12-87	3,173.37	20,794.62
12-14-87	3,173.37	23,967.99
12-15-87	3,173.37	27,141.36
12-16-87	3,173.37	30,314.73
12-17-87	3,173.37	33,488.10
12-18-87	3,173.37	36,661.47
12-21-87	3,173.37	39,834.84
12-22-87	3,173.37	43,008.21
12-23-87	3,173.37	46,181.58
12-28-87	3,173.37	49,354.95
12-29-87	3,173.37	52,528.32
12-30-87	3,173.37	55,701.69
12-31-87	3,173.37	58,875.06
01-04-88	3,173.37	58,875.06 ^a
01-05-88	3,173.37	78,606.63
01-06-88	3,173.37	81,780.00
01-07-88	13,067.04	94,847.04
01-08-88	36,257.85	131,104.89
01-09-88	3,173.37	134,278.26
01-11-88	18,248.22	155,699.85
01-12-88	26,913.21	182,613.06
01-13-88	31,824.90	214,437.96
01-14-88	36,152.27	250,590.23
01-15-88	3,173.37	253,763.60
01-16-88	3,173.37	256,936.97
01-18-88	22,960.71	279,897.68
01-19-88	3,173.37	283,071.05
01-20-88	3,173.37	286,244.42
01-21-88	3,173.37	289,417.79
01-22-88	3,173.37	292,591.16
01-23-88	3,173.37	295,764.53
01-25-88	3,173.37	298,937.90
01-26-88	3,173.37	302,111.27
01-27-88	3,173.37	305,284.64
01-28-88	3,173.37	308,458.01
01-29-88	90,692.45	399,150.46

TABLE 3 (Continued)

SUMMARY OF DAILY CONTRACTOR COSTS*
 DAYTON TIRE AND RUBBER COMPANY - PHASE II
 DAYTON, OHIO
 December 7, 1987 - June 10, 1988

<u>DATE</u>	<u>DAILY TOTAL</u>	<u>CUMULATIVE TOTAL</u>
02-01-88	3,173.37	402,323.83
02-02-88	3,173.37	405,497.20
02-03-88	3,173.37	408,670.57
02-04-88	3,173.37	411,843.94
02-05-88	3,173.37	415,017.31
02-06-88	3,173.37	418,190.68
02-08-88	3,173.37	421,364.05
02-09-88	3,173.37	424,537.42
02-10-88	3,173.37	427,710.79
02-11-88	7,498.17	435,208.96
02-12-88	3,173.37	438,382.33
02-13-88	3,173.37	441,555.70
02-15-88	21,321.37	462,877.07
02-16-88	11,727.65	474,604.72
02-17-88	3,173.37	477,778.90
02-18-88	103,974.82	581,752.91
02-19-88	3,173.37	584,926.28
02-20-88	3,173.37	588,099.65
02-22-88	17,087.04	605,186.69
02-23-88	19,229.37	624,416.06
02-24-88	3,173.37	627,589.43
02-25-88	3,173.37	630,762.80
02-26-88	3,173.37	633,936.17
02-29-88	3,173.37	637,109.54
03-01-88	16,553.37	653,662.91
03-02-88	43,194.85	696,857.76
03-03-88	3,173.37	700,031.13
03-04-88	26,585.37	726,616.50
03-07-88	3,173.37	729,789.87
03-08-88	46,714.94	776,504.81
03-09-88	88,115.20	864,620.01
03-10-88	35,837.71	900,457.72
03-11-88	3,173.37	903,631.09
03-14-88	54,266.97	957,898.06
03-15-88	13,498.66	971,396.72
03-16-88	54,647.25	1,026,043.97
03-17-88	52,995.97	1,079,039.94
03-18-88	31,769.97	1,110,809.91
03-21-88	3,173.37	1,113,983.28
03-22-88	52,980.97	1,166,964.25
03-23-88	3,173.37	1,170,137.62
03-24-88	5,480.16	1,175,617.78
03-25-88	3,173.37	1,178,791.15
03-28-88	3,173.37	1,181,964.52
03-29-88	31,769.97	1,213,734.49

TABLE 3 (Continued)

SUMMARY OF DAILY CONTRACTOR COSTS*
 DAYTON TIRE AND RUBBER COMPANY
 DAYTON, OHIO
 December 7, 1987 - June 10, 1988

<u>DATE</u>	<u>DAILY TOTAL</u>	<u>CUMULATIVE TOTAL</u>
03-30-88	3,173.37	1,216,907.86
03-31-88	59,889.96	1,276,797.82
04-01-88	3,173.37	1,279,971.19
04-02-88	13,067.04	1,293,038.23
04-11-88	14,184.97	1,307,223.20
04-12-88	48,093.82	1,355,317.02
04-13-88	102,088.28	1,457,405.30
04-14-88	106,411.32	1,563,816.62
04-15-88	28,596.60	1,592,413.22
04-16-88	7,800.00	1,600,213.22
04-18-88	28,596.60	1,628,809.82
05-25-88	506,833.00	2,135,642.82
06-10-88	152,776.00	2,288,418.82

* From 1900-55 forms.

*Reconciled on 1-11-88.

TABLE 4

SUMMARY OF LINE ITEM COSTS
DAYTON TIRE AND RUBBER COMPANY - PHASE II
DAYTON, OHIO

LINE ITEM NO.	DESCRIPTION	COSTS
B.1	Dispose Asbestos	\$146,468.00
B.2	Encapsulation of Asbestos	34,443.36
B.3	Wolf Creek Soil	46,268.19
B.3.2	On-Site Soil	238,442.67
B.4	Decon. Building Surfaces	152,776.00
B.5	Disposal of Transformers	135,213.49
B.6	Disposal of Capacitors	11,021.33
B.7	Disposal of Metal Bands	5,939.67
B.8	Buried Tanks	21,226.00
B.9	Disposal of Debris	424,182.90
B.10	PCB-Contaminated Oil	126,372.32
B.11	PCB-Contaminated Water	74,920.00
B.12	Liquids & Sludges	78,708.59
B.13	Dioxin Study	109,644.00
B.14	Store Dioxin	0.00
B.15	Extent of Contamination	397,189.00
B.16	Site Management	285,603.30
		<hr/> \$2,228,418.82

TABLE 5

SUMMARY OF REMOVAL EXPENDITURES
DAYTON TIRE AND RUBBER COMPANY - PHASE II
DAYTON, OHIO

Organization	Amount
PEI Associates, Inc.	\$2,228,418.82
Technical Assistance Team/TES	154,281.00
U.S. EPA	129,936.00
Total:	\$2,512,635.82

TABLE 6

SUMMARY OF ERCS CONTRACTOR EXPENDITURES
BY SERVICE CATEGORY^a
DAYTON TIRE AND RUBBER COMPANY
PHASE III REMOVAL ACTION
DAYTON, OHIO
October 17, 1988 through August 8, 1989

Category	Amount
Labor and Subsistence	\$ 403,699.35
Equipment	32,821.14
Unit Rate Material	39,250.43
At Cost Material .	24,264.65
Subcontractor	973,342.38
TOTAL	\$1,473,377.95

^aBased on U.S. EPA RCMS 1900-55 Forms.

TABLE 7

SUMMARY OF REMOVAL EXPENDITURES^a

DAYTON TIRE AND RUBBER COMPANY

PHASE III REMOVAL ACTION

DAYTON, OHIO

October 17, 1988 through August 8, 1989

Organization	Amount
ERCS Contractor	\$1,473,377.95
U.S. EPA	98,322.00
U.S. Coast Guard	27,588.00
Technical Assistance Team	74,775.00
TOTAL	\$1,646,022.95

^aBased on U.S. EPA RCMS 1900-55 Forms.

TABLE 8

SUMMARY OF TOTAL ESTIMATED REMOVAL COSTS

DAYTON TIRE AND RUBBER COMPANY
PHASE II

NOVEMBER 16, 1987 -- APRIL 16, 1988

EXTRAMURAL COSTS:

ERCS Contractor (1)	\$ 2,288,418.00
TAT Contractor (2)	\$ 154,281.00
Subtotal	\$ 2,442,699.00

INTRAMURAL COSTS

U.S. EPA, OSC -- Direct Costs	\$ 34,890.00
Indirect Costs	\$ 95,046.00
Subtotal	\$ 129,936.00

ESTIMATED TOTAL PROJECT COSTS	\$ 2,572,635.00
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- (1) Source: Dayton Tire Site Specific Contract # 68-W8-0022
1900-55 Forms, as of 10/89 (Appendices G & BB)
- (2) Source: TDD# 5-8810-24
- (3) Source: U.S. EPA Financial Management Branch, Itemized
Cost Summary, 03/10/92 (Appendix G)

Any indication of specific costs incurred at the site is only an approximation, subject to audit and final definitization by the U.S. EPA. The OSC Report is not meant to be a final reconciliation of the costs associated with a particular site.

TABLE 9
SUMMARY OF TOTAL ESTIMATED REMOVAL COSTS
DAYTON TIRE AND RUBBER COMPANY
PHASE III

OCTOBER 17, 1988 -- AUGUST 8, 1989

EXTRAMURAL COSTS

ERCS Contractor (1)	\$ 1,473,377.00
Labor/Subsistence	\$ 403,699.35
Equipment	\$ 32,821.14
Materials	\$ 63,514.00
Subcontractor	\$ 973,342.38
TAT Contractor (2)	\$ 74,775.00
Subtotal	\$ 1,548,152.00

INTRAMURAL COSTS

U.S. EPA, OSC - Direct Costs	\$ 31,467.00
Indirect Costs	\$ 66,855.00
Subtotal	\$ 98,322.00

ESTIMATED TOTAL PROJECT COSTS \$ 1,646,474.00

- (1) Source: ERCS Contractor, I.T.Environmental, 1900-55
Forms, as of 10/89 (Appendices G and BB)
- (2) Source: TDD# 5-8810-24
- (3) Source: U.S. EPA Financial Management Branch, Itemized
Cost Summary 03/10/92 (Appendix G)

Any indication of specific costs incurred at the site is only an approximation, subject to audit and final definitization by the U.S. EPA. The OSC report is not meant to be a final reconciliation of the costs associated with a particular site.

areas that were mitigated during Phase I, II, and III removal actions. The group included legal representatives, safety and risk coordinators, structural engineers, and urban planners from the City of Dayton, industrial hygienists from the Montgomery County Health Department, and an official from OEPA. The U.S. EPA OSC addressed several questions concerning methods of floor decontamination, building demolition, and asbestos abatement.

As a follow-up to the site tour, a post-cleanup meeting was held at the Dayton City Manager's Office on May 30, 1989. Present at the meeting were U.S. EPA officials Cisneros and Barnette, a TAT member, and many of the local officials who participated in the site tour. During the meeting, several pertinent issues were discussed, including final PCB decontamination procedures, planned U.S. EPA actions to mitigate remaining on-site ACM, site security for the remainder of the project, and funds available to U.S. EPA for additional removal activities.

1.7 Cost Summary

1.7.a Phase II Cost Summary

All activities associated with the Phase II removal at the Dayton Tire site were performed under a site-specific contract by PEI. Billable site activity commenced on December 7, 1987, and ended on June 10, 1988. A daily expenditure log is presented in Table 3. Table 4 is a cost summary for all line items. In addition to expenses by the site-specific contractor, funds were also expended by U.S. EPA and TAT. A combined site-specific, U.S. EPA and TAT cost summary is provided in Table 5. A total removal cost summary for Phase II is included in Table 8.

1.7.b Phase III Cost Summary

PEI was the prime ERCS contractor for the Phase III removal action at the Dayton Tire site (October 17, 1988 through August 8, 1989), and in conjunction with several subcontractors (Westinghouse/Haz-Tech, Bel-Par, and U.S. Abatement, Inc.), executed all removal actions. Site activities were suspended during several periods between November 1988 and August 1989, while waste disposal arrangements were finalized.

Appendix O summarizes daily expenditures for services provided by the cleanup contractors. These figures represent expenditures for personnel, equipment, laboratory analyses, materials, transportation, and disposal. Total expenditures submitted by the contractor amounted to \$2,704,495.14.

Table 6 provides a breakdown of the expenditures into the five major categories of labor; subsistence; equipment; unit rate; and at-cost materials and subcontractor costs. The costs incurred by U.S. EPA and TAT are presented in Table 7. A total removal cost summary for Phase III is included in Table 9.

2.0 EFFECTIVENESS OF THE REMOVAL ACTION

2.1 Responsible Parties

No actions were taken by any potentially responsible parties (PRPs) at the Facility. For additional information, see Section 1.4 of this report.

2.2 State and Local Agencies

OEPA was actively involved in the initial emergency response at the Dayton Tire site. After OEPA exceeded their response budget, they requested assistance from U.S. EPA and maintained a limited role throughout the Phase II and Phase III removal projects. Officials from the Southwest District Office of the OEPA visited the site periodically and were consulted by PEI during placement of the on-site ground water monitoring wells. In addition, OEPA received copies of all transportation manifests and were updated weekly through U.S. EPA OSC POLREPs.

2.3 Federal Agencies

U.S. EPA provided all funding for the Phase II and III removal actions at the Dayton Tire site. Under direct supervision of the U.S. EPA OSCs, the removal effectively and safely mitigated the imminent and substantial threats to human health and the environment posed by conditions at the DTR facility. All hazardous waste was properly manifested and transported to Resource Conservation and Recovery Act (RCRA)- and/or Toxic Substances Control Act (TSCA)- approved landfills, incinerators, and recycling facilities. During all on-site activities, OSCs from the U.S. EPA Region V Emergency Response Section were at the site (with the exception of the week of February 27 through March 3, 1989, when coordination was administered by Sue Fields, OSC from U.S. EPA Environmental Response Team, Cincinnati, Ohio).

The USCG provided support personnel from their Hazardous Waste Strike Force Team during initial site mobilization procedures. From October 17 to November 16, 1988, the U.S. EPA OSC utilized the USCG to organize and implement site safety protocols, to conduct air monitoring programs, to staff the command post, and monitor cleanup contractor activities (Appendix Q). Use of the USCG during this time resulted in a cost of \$27,587 (Appendix P).

3.0 PROBLEMS ENCOUNTERED

3.1 Site-Specific Contract

Under the site-specific contract, maximum and minimum limitations were established; however, because of the large size of the site and extensive quantities of contaminated material, these limits were difficult to define. Consequently, some areas of the contract were not as precise as they might have been for contracts for smaller sites. For example, Line Item B.14 (Removal and Storage of Dioxin) was never charged because the dioxin extent-of-contamination study revealed dioxin and furan concentrations below action levels. Line Item B.3 allowed for disposal of soils contaminated to a concentration of up to 500 ppm PCBs. Thus when soils with PCB concentrations in the 1,000-ppm range were excavated, they could not be disposed of under the contract and were staged on-site for disposal under ERCS.

3.2 Weather Conditions

Site operations continued from November through April; therefore, weather conditions hindered many site activities. When working on the roof to remove transformers and decontaminate surface areas, personnel encountered below-freezing temperatures combined with strong winds. Freezing temperatures also hindered the water treatment process because the system was in an unheated building, which allowed the water to freeze. Precipitation events also caused many areas of the building to flood, which prevented decontamination. When the flooded areas froze, a serious safety hazard from slipping and falling was present. In addition, the contaminated soils requiring removal were often frozen, thus making excavation difficult.

In Phase III, inclement weather conditions caused several delays of the project completion date. Ice formed on PCB-contaminated surfaces, and as temperatures increased, frequent rain became a hindrance. Because several areas on the main and basement levels of the facility were flooded during heavy spring precipitation events, pumping of water from these areas was required before floor decontamination could proceed.

Precipitation, primarily through the month of May 1989, also decreased the effectiveness of the evaporation beds, which were created to decrease the volume of PCB-contaminated water. The evaporation beds required covering because of frequent rain, thus minimizing the evaporation rate. As a result, in order to complete the Phase III removal action without additional delays, 15,000 gallons of the water required disposal by incineration.

3.3 Hazardous Waste Disposal

Because of the wide range, complexity, and volume of the hazardous waste remaining on-site, waste characterization, disposal arrangements, and disposal acceptance were periodically delayed. This contributed to the postponement of the final removal action completion date several times, especially from April through July 1989. For example, delays were encountered during disposal arrangements for the PCB-contaminated water. The incineration facility originally scheduled to dispose of the water could not accept the waste because of an operational breakdown. Thus a delay resulted while arrangements with a second incineration facility were completed.

3.4 Vandalism

During three illegal entries to the Dayton Tire site, vandals stole several pieces of equipment (generators, tool boxes, electrical boxes). On one occasion, a locked trailer, which contained personal protective gear and decontamination supplies, was broken into. In addition, vandals cut holes in the perimeter fence on numerous occasions to gain site access. Additional costs were incurred to replace the stolen equipment and to repair damage.

4.0 OSC RECOMMENDATIONS

4.1 Phase II Site-Specific Contract

The site-specific contract was an ambitious undertaking. The contract was designed to acquire a competitive price on the removal activities at the Dayton Tire site. The contract was based on inadequate information as to the full extent of the contamination on-site. Other regions have reportedly had success with site-specific contracts, but given the way the line items were set up and the designation of set dimensions of surface to be cleaned and amounts of asbestos to be removed, little to no room was allowed for any change that might result from under- or overestimates. The OSCs' lack of experience with these site-specific contracts led in part to the formulation of the inadequate original work plan. Such a contract may work well for a site at which the amount of contamination is well known, and for which a time schedule for completion has been set; otherwise, the situation seems to invite problems and typically experiences them.

4.2 PCB Removal from Concrete Floors

Based on the review of many different floor cleaning methods to remove PCBs, the best results at the least cost were achieved using industrial floor scrubbers or even brooms and high-pH industrial detergent with water. The waste water is then disposed of as low-level PCB-contaminated water.